





THE LIBRARY
OF
THE UNIVERSITY
OF CALIFORNIA
LOS ANGELES

Frank S. Ballou

**OUR RAILROADS
TO-MORROW**

OUR RAILROADS TO-MORROW

BY
EDWARD HUNGERFORD



NEW YORK
THE CENTURY CO.

1922

COPYRIGHT, 1922, BY
THE CENTURY CO.

COPYRIGHT, 1920, 1921, 1922, BY
CURTIS PUBLISHING CO.

PRINTED IN U. S. A.

CONTENTS

CHAPTER	PAGE
I IN INTRODUCTION	3
II THE UNITED STATES RAILROAD ADMINISTRATION . .	25
III THE UNITED STATES RAILROAD ADMINISTRATION (con- tinued)	47
IV THE RETURN OF PRIVATE OPERATION	65
V THE PRESENT-DAY SITUATION	79
VI THE MAN FACTOR OF THE PROBLEM	91
VII SOLVING THE RAILROADS' HUMAN PROBLEM	115
VIII THE POSSIBILITIES OF ELECTRIFICATION	135
IX MORE ABOUT ELECTRIC MOTIVE-POWER	159
X A CASE FOR THE STEAM LOCOMOTIVE	172
XI THE GASOLINE-MOTOR UNIT AND ITS POSSIBILITIES .	191
XII SPEEDING UP THE FREIGHT TERMINALS	213
XIII THE TWILIGHT OF COMPETITION	238
XIV THE REGIONAL RAILROAD OVERSEAS	272
XV THE REGIONAL RAILROAD AT HOME	293
XVI THE UNITED STATES RAILROAD	317

**OUR RAILROADS
TO-MORROW**

OUR RAILROADS TO-MORROW

CHAPTER I

IN INTRODUCTION

DO you chance to recall the story of Frankenstein, of the man-made monster, who, having been created, arose to slay the man who had created him? The railroad to-day is in much the position of the man who created the Frankenstein. Having in no small sense created the modern world, having riveted its very sinews of commerce together, it now stands in apparent danger of collapse. The world over, it is at least in peril of bankruptcy. Everywhere it is in trouble. One of the greatest if not indeed the greatest of factors in our social and commercial structure to-day is flying the signals of distress. Its perplexities are upon all tongues. Their solution seemingly has become the problem of all men. The railroad is almost the single great unsolved economic problem of the entire world to-day.

The sweep of a great war, the débris of men and of human understanding that followed in its wake, the new and independent position of labor everywhere, the vast increases in fuel and in raw material costs—all have contributed to the serious embarrassment of our railroads. But never to their breakdown. Please remember this. It is a common phrase these days to allude to "the breakdown of the railroads." But it is an incorrect phrase, decidedly incorrect.

Even in Russia, where transport conditions to-day are the worst anywhere in the world, there has not been a complete railroad breakdown. The Russian railroads after nearly a

decade of overburden are to-day functioning—after a miserable fashion, to be sure, but functioning none the less.

For, truth to tell, a necessary railroad structure may never break down completely. It may descend into the valley of deep woes, it may crawl on its stomach in the despair of seemingly hopeless disease, but it may never quite die. That is out of the possibilities of the thing. Dying, a railroad dying? It must never die. A factory, a merchandising establishment, even a whole town may struggle along fitfully for a number of years and then decide to quit, leaving but a forlorn group of ruins as a memento of vanished enterprise. But a necessary railroad may never quit. When a rail highway of any real importance ceases to operate, civilization itself, begins to crumble. For a railroad is a not alone life but also a life-giver. Upon it depends virtually all the life of the community it serves, not merely commercial life but political and social as well. Which means that the mere suggestion that the railroad structure should cease to function is unthinkable. And here thrusts to the front the vexing problem of how not only to enable it merely to live but to enable it to live in the fullest strength, to grow apace withal, to more than keep pace with the growth of the community that it is designed to serve.

For nearly a hundred years now we have been upbuilding the railroad structure of the world. America pioneered in its creation. Our fathers and our fathers' fathers cannot now remember the day when the call of the iron horse was not heard across the land. The railroad train has become part and parcel of our lives. And even though in these days with our motor cars at the curb we may have come to scorn the railroad train for our own short travels, we know full well that it brings the milk to our doorstep, the coal to our bins, the provender to our larders. It helps weave the fabric upon our backs, build the shoes upon our feet, form the hats upon our heads. At every corner, every turn, we are dependent upon

the railroad. Therefore there is not a man or a woman in the entire United States to whom its present plight should not be of the keenest interest and importance.

We were promised a complete solution of our transport troubles with the hurried passage two years ago of the Esch-Cummins Bill, now known officially as the Transportation Act. Have we reached that solution, or anything like unto a solution?

You do not have to ask the average man twice for an answer to that question. He knows. If he is a business man he knows doubly well. He knows that for the last ten years our American railroad system has been in something of a decline. A decade ago it was at the zenith of its efficiency. For eighty years it had been climbing upward; for the last ten it has been slipping backward. Oh, yes, I do know its war record. It *was* a fine record and one of which every American should be duly proud. There is hardly a physician, however, who has not seen a patient, terribly sick, under the stress of great emergency rise magnificently to a definite situation of supreme importance. So four years ago rose our sick man of American business. And now he has gone to bed more ill than ever before while many doctors quarrel about his case.

And still he functions. The sick-bed man of our American business still renders the all-necessary service that none but him really can render. Fortunately perhaps American business itself at this moment is not in the very best of health. One shudders to think what would happen if industry all the way across the land were again in its top notches of production. It is not the least of the perplexing phases of this all-perplexing railroad problem of ours—the question, when traffic shall again rise (as it certainly will) to normal volume, to say nothing of any abnormal volume, of how our weakened railroad structure will meet it.

That it recently withstood severe tests is of course no indication that it could again withstand such strains. All the way across the land our railroad functioned in the recent ordeals through which it has passed—which of course is not saying that it could do this again. It quite naturally worked at its best in the western sections of the land, where there are both less congestion and comparatively larger rail transport facilities. Yet as one came east he found the American railroad still meeting its responsibilities bravely and with a real degree of efficiency. One crossed the Missouri, the Mississippi, the Maumee, and still found the railroad functioning—the stout, pliable rod of its energy bending but never breaking. He came further east still, crossed the Susquehanna and then the Delaware, and still the rail carrier functioned. He came to the Hudson and found the battered and overburdened railroad machine still meeting its obligations, after a fashion at least.

Our railroad machine did not break even in New England, where conditions are and for a long time past have been almost at their worst; where for nearly two decades a high-grade community has been forced to pay penalty, and pay generously, for a grave accumulation of railroad errors. It was in New England that American railroading really began, with the construction in 1808 of a crude wooden railed line at Quincy, Massachusetts, whose horse-drawn cars brought granite from the quarries down to the water's edge, whence it might go by sloop to Charlestown, where the tall shaft of the Bunker Hill monument was beginning to arise. It was in New England too that the first real railroad enterprise and development were shown; by the middle of the forties a group of energetic and profitable small companies rapidly expanded and offered genuine transport to six of the busiest and most rapidly growing States of the Union.

It is in that same New England that when one comes to-day he finds the picture of our national railroad machine almost

at its very darkest—the stations dirty, unpainted, neglected; the passenger-cars and the locomotives in similar or even worse condition; the morale of the rank and file of railroad labor low in many different ways. Remember that it is not like this everywhere else within the land. It is particularly different out in the West. Take California; out there the stations almost invariably are clean and brightly painted, the broad lawns that surround them are in the pink of perfection, while the trains that enter and leave the stations are in full keeping with them. Engines, and the passenger-cars behind, are alike clean, fresh-painted, efficient in every detail of their appearance. Paint certainly does wonders. The cherry-red electric trains of the Southern Pacific never seemed brighter or more immaculate. I rode a little more than a year ago on a huge steam locomotive of the El Paso and Southwestern railroad. The brightness of her appearance, the efficiency of her performance, seemed to belie the fact that it was eleven years since she had left the big shop in Philadelphia where she had been born.

Always it is as one comes further east that the American railroad machine grows more and more shabby, until in New England we see it at its worst. Our entire railroad structure, speaking nationally and subject only to a few exceptions, is worn down a bit. It is a shoe outgrown. It pinches. It pinches hard. Yet nowhere does it pinch harder than in New England. I hinted but a moment ago of the transportation machine there, twisted and bended and torn and all but completely broken. I spoke of the desolate appearance of many of the trains and of the stations. The Boston and Albany, it is true, has been something of an exception to this rule. The present condition of the Springfield station does not prove the exception however. Always a wealthy road, the B. & A. is compelled by its State charter to return to the Commonwealth of Massachusetts all of its earnings in excess of an annual 8 per cent. It is hardly necessary to add that

even in its most prosperous years the excess earnings went into the property. And in consequence the patrons of the road benefited. But that was yesterday.

It was yesterday too that Boston possessed a suburban service in which she could at least display some slight evidences of satisfaction. That yesterday is now quite gone. To-day the service is unquestionably the very worst in all this land. It is doubtful if any other large American city would tolerate for a month the sort of suburban service which to-day is doled out to the Boston metropolitan district. Ancient and dilapidated cars, pulled by equally ancient and dilapidated locomotives, are the sad lot of the Boston commuter. The records of the railroad companies themselves show that some of these ancient coaches date from as far back as the early eighties; many of them go back into the nineties. Nightly the trains are crowded, not only to the extent of their seating capacities, but well beyond them. Nightly the abominable overcrowdings of the New York subways are repeated throughout the Boston suburban zone, and with far less excuse.

In its appropriate time I shall discuss the large possibilities of electrification as it applies in particular to the Boston suburban zone. For the moment consider this New England corner as the darkest corner of a transportation picture which to-day has but few patches of brilliancy. As one goes from east to west however the picture brightens perceptibly. Do not forget that it is at its very worst in New England and perhaps at its best in California.

For the moment the freight service, nationally speaking at least, is not subject to the same criticisms as the passenger. (To the depleted passenger service we shall come in good time.) This for the simple reason that the traffic is not being produced across the land. A sadly depleted transportation structure easily can take good care of a sadly lessened freight traffic. But let our wheels of industry begin really to hum

again and contemplating the present condition of our carriers, I shall fear a reversion to the conditions of the winter months of the early part of 1920, when one box-car took forty days to go from Boston to Chicago, a trip that easily should have been made in a fortnight, while another car but a few days later took fifty days for the same journey!

Yet, to be entirely fair, these runs were made in a winter which, by the official records of the weather bureau, was the worst that the country had known in thirty-six years.

All right. Let us be fair. We shall go back three years to 1917 before government control and the really big labor problems had been wished upon the railroads. The New England roads even then were already having a fearful time of it. The Boston Chamber of Commerce sent out questionnaires to the big shippers of the district asking for specific reports on *all* of the car-load shipments that they were making. When the questionnaires came back to it, all filled in neatly on the dotted lines and in the blank spaces, they showed the definite record of 2625 cars, quite enough to be fully representative of the entire situation. One New England land shipper reported that the fifty-nine cars which he had had in Chicago movement had ranged from thirteen to eighty-seven days in transit. (Remember, if you will, that a fair average for that journey is fourteen days.) One hundred and sixty cars bound to his siding from various Western points had together consumed 6709 days in transit. A reasonable time for their journeys would have totaled 2550 days. Detentions due solely to railroad delays had in his one case come to the considerable figure of 4159 days.

For the entire 2625 cars—in almost every case from the primary grain-markets of the West—the total transit time came to 109,569 car-days. Again the law of fair average time comes into play. Let me explain briefly how it is made. To the shortest time in transit between two given points an arbitrary of 50 per cent. is added. This makes the fair

average. In practice it results that the average time to Boston from points east of a line drawn through Buffalo and Pittsburgh is fixed at seven days. Two weeks are allowed from points west of that line and east of the Mississippi, three weeks from those east of the Missouri and thirty days from places as far distant as Montana. With this rule as a measure and taking the individual routings of each of these 2625 box-cars, the fair average time of all of them came to a total of 40,753 car-days. Subtracting this time from the total transit time as you have just had it, we get in a few months at the beginning of 1917 a railroad detention of 68,996 car-days, or an average waste of 26.2 days for each car. If this waste could have been avoided there would have been an additional use of 9856 cars for one week each, or 3285 cars for a three weeks' period. The hard-headed railroad executives who continue to argue against a too elaborate car-building program must understand these figures and their full import. Nor can their brethren in the field be entirely blind to the success of the Car Service Commission of the American Railway Association in making an extensive and vastly bettered use of the freight equipment immediately at hand at that time and available all the way across the country. It takes a lot of time and money to build any considerable quantity of new freight-cars. It does not take much of either to make a better use of the cars already in operation. And this is the very thing that had been done to a certain extent, up to the beginning of the present business slump.

It would not be just or fair to assert or even to imply that all of the car delays which we have just seen occurred within the boundaries of New England. It is just as fair to assume that many of them came to pass in Montreal, or in Toronto, or West Albany, or East Buffalo, or Altoona, or Brunswick, as in West Springfield, or Cedar Hill, or Mechanicville. But when this point has been stated the fact still remains that the New England roads to-day are and have been

for a number of years past fairly typical—certainly not exceptional—of the condition that prevails in certain other sections of the land, particularly upon the so-called “weaker lines.” The great trouble is that in New England there are virtually no strong roads. They are all down in the doldrums. Even the last series of rate advances by the Interstate Commerce Commission, which gradually are proving very profitable to many of the already strong railroads in the southwestern corner of the United States, have failed to bring relief to the already weakened properties in its northeastern corner.

In the course of this book I shall refer more than once to the deplorable New England situation. I have referred just now to the fearful delays to freight originating there in the last fairly normal period of private operation, giving full heed to the fact that many if not most of these delays occurred outside of the actual New England territory, in order to emphasize the absolute unpreparedness to-day of our national railroad structure should great freight traffic demands be made upon it once again. In a merely introductory chapter I cannot expatiate at length upon the reasons that have led to this bad condition nor attempt to give the methods by which it may possibly be corrected. I merely am trying to paint in brief a picture that has all too few high lights. In the course of this book I shall attempt gradually to fill in some of the details.

All these things, and many others too, are upon the face of our present railroad situation in this country. When one goes beneath the surface matters are even worse. If one is a security-holder in rails he does not have to study Wall Street reports to see the saddening decline in dividend payments—either average or cumulative. It is he who long ago began to smell the rat. And the news that in the railroad the employer and the employee have been slipping further and further apart until a seemingly unbridgeable gulf has come to exist between them, that the executive personnel of

our railroads of to-day is growing on in years with little or none to replace it, that no steps whatsoever are being taken to bring our railroad structure up to the necessities of to-day—to say nothing of to-morrow—is not news to him.

Perhaps the most pathetic of all these declines is that of the fine tradition of American railroading—the thing which in war days we learned to call morale. It was that tradition that used to make the farmer's boy, as he stood in the field and watched the express sweep by, yearn to become a railroad president. In a less romantic and far more concrete form it enabled the old-time railroaders to fight against fearful conditions at times—against the blizzards of midwinter in the north, the blazing midsummer of southern deserts, flood, pestilence—come what might, that old-time railroader was ready for it.

It was the survival of that tradition, the fine fiber of its long-created morale, that enabled our railroads to make such a fine war-time performance. And it is its lessening, the gradual passing of the old-time railroader with none of his caliber to replace him, that is one of the tragedies of our railroad situation of to-day.

To Americans these things still will come as more or less of a surprise. They may have felt themselves fairly remote from actual railroad responsibility. They may have been depositors in the saving-banks downtown or holders of policies in the insurance companies, and yet have quite forgotten the millions of dollars of railroad securities in the strong-boxes of these great fiscal institutions. The financial ramifications of the railroad as well as its social and commercial ones are far-reaching indeed.

Once again, it is because of this intertwining of the railroad with the every-day life of the American community in its every phase and relation that the growing seriousness of its present predicament becomes a matter of so large national import. Our transport problem is no academic matter. It is

very real, very human, very close to every one of us. I did not overstate when I said that the railroad to-day was life itself to us. And because it is life, our life if you please, its present serious problem is very much our business.

If we should go back and begin at the beginning we should find our American railroads in their beginnings small individual units, in many cases personal properties, like a store or a bank or a factory, and seldom correlated. Even the gages of our pioneer roads did not always agree, and in at least one case purposely so. The early builders of the Erie felt that by laying down a six-foot gage for their enterprise they would succeed in keeping their freight-cars and other equipment on their own property and under their own eyes. In this purpose they succeeded admirably. They also succeeded in keeping the freight-cars of other railroads, bringing valuable interchange merchandise, off their rails, with the eventual result that that railroad, twenty years after it was first laid down, was forced at great trouble and expense to bring its track to the standard width.

There was much that was crude and experimental about those early roads—a condition that was of course bound to exist. The traveler who went abroad upon them quickly became aware of all this. In the beginning he would change cars four or five times between Albany and Buffalo; and when fifteen or sixteen years later the railroad had extended itself all the way out to Chicago there were three or four more changes to be made. To-day a solid train from New York or Boston to Chicago or St. Louis is so much a part of our regular order of things as to cause no comment whatever. Yet even to-day one cannot ride across the North American continent from the Atlantic Ocean to the Pacific without a change of cars—that is, not in the United States. In Canada he can do it quickly, easily, comfortably. Of which much more in good time.

The lack of convenience in the handling of freight was

equal to if not greater than that in the handling of passengers. Of through routes there were none. Freight bound from five hundred to a thousand miles or more was repeatedly transferred and retransferred. The fact that until the late seventies two such important links of the important New York-Chicago routes as the former Lake Shore and the New York Central and Hudson River railroads had gages varying a little more than an inch, and so necessitating an elaborate mechanism at Buffalo for the transfer of the trucks beneath the freight-car bodies, shows the fearful lack of rail correlation everywhere across the land. Indeed it was hardly a decade before, that a state of near civil war had been precipitated at Erie, Pennsylvania, by the efforts of the Lake Shore railroad to standardize its gage through that town. The townsfolk, urged and led forward by local hotel-keepers and bus-drivers, had stoutly resisted the change.

In railroad rate-making and accounting of every sort conditions were even more chaotic. There were no standards. You could hardly expect a group of several hundred widely separated and highly individualistic railroads to have uniform bookkeeping practices when in many instances there were not enough standards in the building of their cars to enable them to be coupled together into a single train.

And yet with all of this wretched system, or lack of any system whatsoever, those little railroads of yesterday had many, many things in their favor. Their very individuality was an asset. The fact that they were owned and operated by men who lived upon their lines or very close to them was a still greater asset. The railroad executive of those days understood from first-hand knowledge and intimate personal contact the problems as well as the opportunities of the communities that he was trying to serve. And a third and still greater asset was the close personal relationship that he might enjoy with his employees. On a railroad owning from twelve to twenty locomotives he might know, and almost invariably

did know, not only each of those engines individually but the men who ran them. In fact in those days it was customary for a locomotive to be named and to be assigned to a permanent crew of engineer and fireman, who immediately began to take a surpassing pride in the upkeep of their craft—in keeping her boiler black and shiny and her brasses and her nickel-work gleaming like new.

In these days the brass and the nickel and all the rest of the former gay trimmings have departed from the locomotive. Its boiler is no longer shiny. On the average American railroad, locomotive upkeep has become an all but forgotten art. The names and the individuality have gone from its engines. They are assigned to crews out of the roundhouses in a very systematic and utterly unsentimental way. Yet something very definite has been lost.

You could scarce expect a modern railroad president whose system may own three or four thousand locomotives to know any considerable number of the men who operate them. Yet here is the loss. On that little road of yester-year the president not only knew his engine crews by name—generally calling them by their first names—but his conductors, his station-agents, his telegraphers too. And knowing them, understanding them, working with them in almost every case, there was no labor-union problem to confront him. There were no unions then for the simple reason that there was no necessity for them. The labor-union upon the railroad with all of its problems for the management came definitely as an effect of its super-consolidation. And the railroad tradition began to fall.

Even after the first steps in the inevitable consolidation of our various lines had begun, when for instance the six railroads in the three-hundred-mile stretch between Albany and Buffalo had been merged into the first New York Central, this intimate sense of personal relationship remained for a long time.

The statue of William Bliss, president of the Boston and Albany railroad, which stood for many years in the lobby of the old Kneeland Street Station in Boston, typified it. When the Boston and Albany was the Boston and Albany it was the pride not only of its employees but of all New England. But when, in accordance with the general railroad practice of the moment, the Vanderbilts took it over upon a long lease and painted out the old name, placing "New York Central" upon the cars and locomotives, New England rose in its anger, and it was not appeased until a shrewd executive, going to Boston from New York, reversed the new order of things and painted the beloved old name back again upon the equipment. After which serenity ruled once again along the lines of the "Albany," as the Boston people to this day love to call it.

What's in a name? More than you can imagine. I asked a shrewd brotherhood man once what the New York Central had sacrificed in operating efficiency when it had chosen to paint the names "Lake Shore," "Michigan Central," and "Big Four" from its western constituent lines, and he said that he guessed—it really is anybody's guess—that 50 per cent. would be about right. The Pennsylvania system, with a great deal of real wisdom and long vision, not many months ago decided to divide itself into four large regional operating divisions, all to be known however under the general title of Pennsylvania System. Yet an old passenger conductor with whom I have ridden these great many years between New York and Philadelphia confessed to me his great personal regret at the passing of the fine old name, "Pennsylvania Railroad."

"I feel as if I had buried an old friend," said he. So felt others, and a little later the Pennsylvania dropped the "system" from its official name and came back as the good old Pennsylvania Railroad once again.

A few miles further south the people are still grieving over

the loss of the "Cumberland Valley," one of the earliest railroads of the land—incidentally a Pennsylvania constituency and one which until the recent change had held its name and its individuality. Across the land the thing repeats itself again and again. Away up in the northwestern corner you will find people to-day lamenting the renaming of their chief railroad system into the Union Pacific.

"We were proud of the name 'Oregon-Washington Railway,'" said one of the really big men of that community not long ago. "It was a good railroad and we felt that in no small sense its goodness reflected that of this particular corner of the U. S. A."

If this feeling comes to the patrons of these railroads how much more distinctly must it come to their workers? In subsequent chapters in a pleading for a division of our national railroad structure into shorter operating units, despite the ponderous suggestions of the Transportation Act, I am going to refer to the fact that in this country a half-dozen or so of the small railroads ("small" at least in a comparative sense) are the best operated and hence the most profitable lines in the land. And incidentally, despite the great tangle of red tape that the government system of railroad control has spun about them, they still enjoy comparatively friendly relations with their labor.

With the fundamental idea of railroad consolidation one can have no quarrel whatsoever. It was inevitable. It came logically and sequentially—in some ways before many folk were really aware of it. When a very few years after the close of the Civil War the merger of the Grand Trunk railroad was accomplished—a single system of nearly four thousand miles, stretching all the way from Portland, Maine, by way of Montreal and Toronto to Detroit (a little later, on to Chicago)—America stood aghast. And yet what were four thousand miles to be compared with a single system of twelve thousand

miles of main-line track—nearly one-twentieth of the total mileage in the United States, upon which moves one-seventh of the traffic of the nation? And yet here is but one of three or four big twelve-thousand-mile systems that our land holds.

In our Yankee version of the English language we dearly love that word "big." Yet is it not now a fair time to ask what that bigness has really cost us? Granted that with a certain amount of real aid from the state it has given us through rail and through car routes of an amazing multiplicity—even though one cannot cross the United States from the Atlantic to the Pacific in a through car, unless it be a freight-car—that it has simplified vastly our tariffs, our ticketing and our way-bill systems, it certainly is failing to-day in many, many instances to give us the high degree of service which our railroads themselves have educated us to expect. As I said at the beginning our transport service to-day is appreciably poorer and the rates a great deal higher than they were a decade ago, while the personnel problem of our railroads, in their executive ranks as well as in the ranks of the great mass of their labor, has become a matter of real alarm.

In this book I am going to give scant attention, if any, either to the scandals or to the triumphs of railroad finance for a half-century past in this country. Neither am I going to hark back to the evils of multiple and oftentimes conflicting regulation of our carriers by the Federal and the forty-eight State governments. Both have been pretty thoroughly treated over and over again. And so we shall assume, first that the railroads must be properly financed in order to function at all, and second that the principle of regulation by the state is so thoroughly established by this time as to be removed from the field of controversial argument; while the perplexing factor of many and oftentimes annoying conflicts between the

State regulatory bodies, or between them and the Federal Interstate Commerce Commission, is being solved automatically by the steadily increasing usurpation of the individual rights of the various States by the centralized government at Washington.

The problems upon which I shall prefer to linger in this book are those that concern the physical side of our national railroad structure, future as well as present, its operating problems as well as its purely human ones, in these last including not merely the very human problem of the men and women who work upon the railroad but those who ride upon it or otherwise become its patrons. Granting the great importance of its questions of finance and of state regulation, I still feel that these last are of still greater portent to its future. With these properly solved, finance and regulation, to a large extent at least, will solve themselves. A national railroad structure well operated, with efficiency, with economy, with vision, with a broad human relationship, will not have to worry very much about the sale of its securities or about interference from fussy regulatory bodies. I think that this may be fairly set down as a fundamental fact in our argument.

As to what constitutes good operation, efficiency, economy, vision, broad human relationship, there will of course come more than one opportunity for an honest difference of opinion. It is in the sincere effort to gain the real current of forward-looking opinion upon these great questions of our national transportation problem that the writer for the last sixteen years has traveled many thousands of miles across the United States and Canada and has interviewed hundreds of people in railroad circles and out. For more than a dozen years past he has foreseen the present crisis. The coming of the World War hastened it a bit perhaps but the crisis was inevitable. A drifting policy, which oftentimes was no policy at all, followed by both the railroad and the various groups of

persons that assumed to control it, has brought us almost to the edge of supreme catastrophe.

Go back with me once again to the beginning. Remember if you will that the railroad in the United States to-day is a little more than ninety years old. For eighty of those years it was in a state of steady and healthy development and progress. For the last ten or twelve of them it has not only been in a state of arrested development but narrowly approaching entrance into a state of decadence.

For eighty years the American railroad grew, and grew heartily. It financed its own growth and, consisting very largely of independent units, financed itself quite readily and as a rule locally. It kept its physical facilities, track and rolling-stock and all the rest of it, abreast if not ahead of actual traffic requirements. About the beginning of the present century, as presently we shall see, it began to feel the burden of greatly increased material costs, and of taxation also. It met these added costs, without any very visible addition to its revenues, by holding rather tightly down on its payroll and by adopting large operating efficiencies and economies. For a while these sufficed. They had to suffice. Appeals to the State and Federal regulatory commissions for increased rates were generally vetoed pretty promptly. Since the establishment of the Interstate Commerce Commission in 1887 these regulatory boards had increased steadily in strength and in prestige. They felt their oats. And many did not hesitate to deny the applications of the roads for rate increases.

In 1906 something happened which in later years was to loom large in American railroad history. Congress, under a considerable pressure from President Theodore Roosevelt, passed the so-called Hepburn Bill, radically amending the Interstate Commerce Act and giving the I. C. C. an almost unbridled authority over railroad rates. The Interstate Commerce

Commission could not itself authorize changes in the tariffs of the carriers but it could, and frequently did, veto any changes that the roads themselves saw fit to make.

Parenthetically it may be stated that even though this increase of power granted to the big Federal commission stirred up something of a competitive energy on the part of the State regulatory commissions to supervise more carefully than ever before the operation of the railroads through their respective bailiwicks, it also marked the long beginning of the end for the State boards; as far at least as our steam railroads are concerned. As I have said already, it is still another of our difficult national question-marks in which the old, old problem of States' rights again shows its disagreeable face. Eventually it probably will be ended by shearing these State boards of virtually if not absolutely all of their supervision over interstate railroads; and the I. C. C. long since has shown marvelous ways in which this phrase may be extended to cover even the tiniest of apparent intra-state lines.

The passage of the Hepburn Bill put the first quietus upon the development of the carriers. Soon after, they began to cease large additions to their plants, even though the nation that they served went steadily ahead in its development, by leaps and by bounds. Yet for full ten years after 1906 the net earnings of the carriers continued to increase, in pace with the great growth of the nation and its industries in those self-same years, until under the war stress of 1916 and 1917 they had come to the astounding total of almost a billion dollars a year "net operating income," which under the rigorous accounting systems of the Interstate Commerce Commission signifies the amounts available for paying interest and dividends and making permanent improvements. In other words the deterioration of the national railroad structure had begun well before the maximum of net earnings had been reached, and by the end of 1917 had reached so serious a stage as to threaten

a possible breakdown—I am using this last word advisedly—or at best a fearsome congestion and uselessness, in the face of one of the gravest national crises that the United States has ever had to meet.

Confronted with such a possibility President Wilson did not hesitate. He took no chances. With the supreme powers which were his as the war leader of the nation he reached out and took over the railroads and made them a direct agency of the national conduct of the war, under the name of the United States Railroad Administration, placing them under the direct and autocratic control of William G. McAdoo, secretary of the treasury and a man with not only a large knowledge of railroad finance but with a degree of success as an actual railroad operator—of the short but busy Hudson and Manhattan rapid transit lines connecting New York, Jersey City, Hoboken, and Newark.

There has perhaps been no single activity of the Wilson administration and its conduct of the war more seriously discussed and criticized than its control of the railroads. Even the gigantic expenditures and manifest blunders of the Shipping Board have been passed quickly by, to linger upon those of Mr. McAdoo and his fellows in the Railroad Administration. Yet when all has been fairly considered the Railroad Administration in its brief twenty-six months of life accomplished some very creditable things, and some not so creditable—some of these obvious, some others most unexpected and strangely outré. It was obvious for instance that a highly centralized, automatic, and supreme control could obtain large operating economies by completely obliterating competition and could by appealing to the traveler and the shipper in the role of a sadly harassed government, obtain a coöperation that no private agency might ever obtain.

Because the brief history of the Railroad Administration enters so very vitally into any consideration of the railroad situation in the United States both to-day and to-morrow, I

shall come to it for the next chapter of this book. For the final paragraphs of this, consider once again the present lowered efficiency of our rail transport in this country. That it has been bettered in some of its phases since its relinquishment by the government I shall not deny; that it has been bettered in some of the most vital of them I shall dispute until the end. The proofs are too easily at hand. And so the reading of them may lead us into a really intelligent understanding of the situation.

What's the matter with our railroads?

That question is being asked hundreds of times each day by business men all the way across the land—from Portland, Maine, to Portland, Oregon, from north to south and back again. These men, keen in their perception of many of the great and perplexing problems assailing the United States at this moment, frankly admit their lack of an understanding of the railroad one. They are torn by a vast conflict of statements and of opinions. Skilled propagandists succeed only in adding to the confusion. Apparently nowhere is an independent voice raised in the interest of the common citizen of America, the man who perhaps is not a wholesale user of our overland transport but who realizes from personal contact each time he makes a shipment of his goods or goes himself abroad into the land that our national railroad has suffered a vast deterioration within the last decade, that it no longer functions with anything like the high efficiency that it had attained say twelve or fifteen years ago.

What's the matter with our railroads?

It is a fair question, and one that demands a fair answer. Why should not our railroad structure in the United States to-day be rendering service at least as good as that which it rendered but ten or twelve years ago? Is it man failure, either in the lists of the rank and file or in those of the executives? Is it, as has been charged frequently, interference by

the Federal and State governments or, to put it in a gentler fashion, over-regulation by these same agencies? Is there lack of intelligence or vision or human understanding? If so, just where are these lacks?

It is to the answering of these questions that the writer puts his sixteen years of intimate and personal study of the American railroad and, as he has just promised, takes up that problem on April 5, 1917, the day that the United States of America officially entered the World War overseas.

CHAPTER II

THE UNITED STATES RAILROAD ADMINISTRATION

LONG before the clear Washington morning had broken which succeeded that stormy April evening of 1917 when the United States first entered the World War, the railroad executives themselves had been feeling that there would need to be correlated and coöperative effort to make the rail transport system of the country adequate to meet the new and added burden to be laid upon its already sadly bended back. Not many weeks after that terrible August, 1914, the United States was feeling the reflection of the world disturbance, although feeling it in some unexpected ways. In August, 1914, few people in this country if any dreamed of the tidal wave of industrial production that was soon to all but overwhelm us, when Bridgeport turned (almost overnight, it seemed) from a sleepy Connecticut manufacturing town into an overcrowded metropolis wherein people by the hundreds slept nightly in the railroad station, and the new county almshouse was transformed into an overflow hotel; when Akron, Ohio, ran wild with prosperity, growth, and overcrowding; when drowsy old Bethlehem, Pennsylvania, became a bedlam of industry and Chester, Pennsylvania, the same; when Detroit, well used to rapid growth, now leaped ahead toward the million mark; and when so also in a large degree did Wilmington, Delaware, and Youngstown, Ohio, and Trenton, New Jersey, and Rochester and Schenectady, New York—dozens of other communities like them. Manufacturing plants worked night and day and doubled and trebled and quadrupled themselves in a matter of mere months; half-

abandoned shipyards sprang into life and extension; mines were dug with a furious speed into the rich subsurfaces of mother earth—production everywhere. And everywhere the chief burden of all this was coming upon the back of the American railroad, and coming at a time when it could ill afford any overload.

As even a casual student of the situation easily understands, for the six or eight years before the advent of 1914 most if not all of the railroads of the United States had been in a period of serious retrenchment. Soon afterwards the beginning of the present and national increases in the cost of living had become an appreciable burden to them, not so much (as we shall see before we are done with this book) in their wages as in their cost of coal and other materials. They had endeavored to meet this increase in one expense in the conduct of their business by cutting down in other expenses. "Economy" and "efficiency" had become real catchwords to them. In both of these they accomplished much. At least so it seemed in 1914. Their economies up to that time, compared with the ones that have been achieved since then, were almost as nothing.

So the railroads were none too well equipped to meet the strain of greatly increased business that the war overseas thrust upon them. Their supply of locomotives and cars was inadequate. The track equipment upon which they ran their terminals and yards and their shop facilities were, if in good repair, at any rate in most cases no longer generous. And that prized possession of the American railroad of yesterday, the morale of its men, the thing that I shall call "the fine tradition of our American railroading" again and again and again before I am done with this book, was already on the wane.

So to an economic agent already sadly overburdened if not actually crippled was to be given also the serious and the urgent business of transporting soldiers and sailors and their munitions, a United States army of a size never before con-

ceived, supplies in a vastness heretofore deemed incredible. Long before Woodrow Wilson's signature was dry upon the dreaded declaration of war the War Department experts were making detailed plans for the enlistment, the training, the supply, and the transport of the new army that was to go overseas. They involved many things, most important among them the creation of thirty or forty great concentration and training camps and huge ports of embarkation.

To meet these needs the already swollen manufacturing industry of the land was spurred into fresh efforts of production. More factory buildings went up, more shipyards were established—we were talking about the “bridge of ships across the Atlantic” those days—more abandoned mines were put into activity once again.

All these things were a fearful burden upon a national railroad structure that was from the beginning inadequately equipped for a proper handling of them. Yet how did the national railroad structure meet this added burden set upon its badly bended shoulders? The answer is—like a good American citizen. Up to that April night, without a really efficient or concrete central body, it already had sought to create one. It took the ancient and somewhat archaic American Railway Association, shook new life into it, and on April 11, 1917—six days after the war declaration—established at Washington what was known as the Railroad War Board. For the personnel of this board the national railroad structure sought out some of the very best of its executives: Fairfax Harrison of the Southern railway, Hale Holden of the Burlington, Julius Kruttschnitt of the Southern Pacific, Howard Elliott of the Northern Pacific, Samuel Rea of the Pennsylvania, and Daniel Willard of the Baltimore and Ohio. The first five of these men were made into the active war board and immediately moved themselves to Washington where they set up a permanent headquarters. Mr. Willard already was prominently identified with the business of the organization of this country's part in the World War as chairman of the

Council of National Defense, which was then doing a very great work of hurried preparation for the conflict, but which President Wilson afterward saw fit to relieve of most of its power and responsibility.

At the request of the American Railway Association Mr. Willard became an ex officio member of the Railroad War Board and was in constant consultation with it. So did Edgar E. Clark, a valued member of the all-powerful Interstate Commerce Commission at that time and a veteran railroader of wide experience, having risen to the rank of conductor and in time become the head of the great brotherhood of that branch of railroading.

The Railroad War Board came into being committed to the idea of a single continental railroad in the United States as a war-time measure; please mark this fact for future reference. Indeed that efficient and economical idea had been in the heads of some of our practical railroaders for a good many years before the coming of the World War. But any steps that they might take toward it then seemed to bring them afoul of the Federal statutes—particularly the so-called Sherman Law—and in imminent danger of the penitentiary. Now, however, there seemed to be the faint ghost of an opportunity to gain some of the obvious practical advantages that naturally would inure from a centralized control of our national railroad structure.

Three great things, however, the War Board lacked. The first was the financial backing of the Government. No matter what broad plans for efficiency it might and did adopt—and that they were effective plans the statistics of their results most clearly show—the railroads lacked the financial resources to go into a market where rising labor and raw material costs were being reflected directly in tremendously increased prices for locomotives and cars and rails and every other what-not that goes to the making and maintaining of a railroad. On the contrary they watched the value of their securities drop as they listened to the demands of their employees for higher wages.

Beyond the War Board's local authority, it had no real centralized control, no genuine supreme power. After all, it was but a group of men—big men, powerful individualists, each of them. They had been reared in powerful roads, roads of great traditions. They had been competitors, powerful competitors. Coöperation, at the best, was no easy pathway for them.

Remember always that the Railroad War Board lacked authority. It could not even compel its own member roads to fall in line and stay in line toward the formation of the single national railroad system. And as for the shipper, it could only go to him on bended knee and beg his coöperation. And of all the shippers the Government was perhaps the worst of all. It is our own beloved Uncle Samuel who is a most obdurate and unreasonable old fellow when he takes it into his head to become a patron of the railroad. If he is a passenger and in gold lace and khaki he may come into the train and demand that it be stopped and started to suit his own convenience. That frequently is done. And as a shipper he was forever letting his boys—Food and Fuel and Ships and a lot of others too—place priority orders upon their shipments, to the immense complication of the entire railroad situation.

The Railroad War Board began slipping in November, 1917. The hard early winter of that year finished the job. The inspectors of the Interstate Commerce Commission at various terminals and division points (themselves none too friendly to the War Board) began filing by telegraph their reports of delayed cars and trains, and the members of that commission, at the suggestion of the President, began framing a bill supplementing the measure of August, 1916, which had permitted him to take over the lines in case of a national emergency, and outlining the plans for the step as well as for the protection of the security-holders of the properties. The plan was in Mr. Wilson's hands early in December and he decided that McAdoo—who seemed to stand in an impartial and aloof position from all the properties and who had not only a rapid transit electric

railroad experience at least, but remarkable acumen in financial matters—ought to have the job. McAdoo sought to decline it. I honestly believe that he never wanted it. The President insisted. The weather grew more inclement, the railroad rod bent further than ever before. Then on the eve of Christmas something happened. A great American railroad stood in the shadow of bankruptcy. Other receiverships were to follow upon its heels. Such a calamity was unthinkable. The die was cast. The White House moved, and moved quickly. McAdoo accepted his new responsibility and on December 28, 1917, became director-general of more miles of railroad than any one man—even the late E. H. Harriman—had ever even dreamed of controlling.

William Gibbs McAdoo took hold of his new job with a pretty firm grasp. He said that he was going to “do things” and apparently he meant to keep his word. With one stroke of the pen he abolished the abominable priority orders and with another he doubled the demurrage charges upon freight-cars—two vastly important executive steps toward a bettering of the entire railroad situation. The rapidly retiring Railroad War Board, confronted by the increasing conditions of congestion upon the roads, at the eleventh hour sent an urgent request to the various lines that they at once reduce their passenger services at least (it had been suggested that their entire public service be suspended for several days)—suggestion which in some cases was acted upon with more enthusiasm than judgment. There was many a division superintendent who saw a chance to take a death-crack at that unprofitable, unhealthy, money-eating 11:08—or was it the 5:15? In other days a stern State commission probably had stood to forbid him, in the public interest, removing a train which might have had an average of seventeen passengers a day. Now the authority of the State commissions, even to a large extent of the all-powerful Interstate Commerce Commission, had largely been superseded.

The Pennsylvania, which for many years past has had the

major share of traffic between New York and Washington, had asked a little time before to have its fastest express between the two cities, the almost internationally famous Congressional Limited, made an excess-fare train, like the Merchants' Limited from New York to Boston or the Twentieth Century from New York to Chicago. The commission, on the very eve of McAdoo's accession, refused. The road withdrew the world-famous train despite the fact that it was running to capacity and announced that thereafter all trains between New York and Washington would carry but one parlor-car each.

Now it happens that this route was and still is of tremendous commercial importance, not alone for the movement of freight but for the movement of men, big and little, in government service as well as in essential private business, back and forth between Washington, Baltimore, Philadelphia, and New York, and the great territory that lies behind all of these cities. McAdoo's quick judgment saw the need of clean, comfortable, quick transit for these men and ordered the famous train back again, even though it did not then regain its historic name nor quite all of its parlor-cars, nor run at quite as brisk a pace as heretofore.

McAdoo is no fool. Even his bitterest enemies—and he has plenty of them—will admit that. His moves from the very beginning of his overlordship of the railroads were generally marked with extreme shrewdness. And although he does not coöperate well he showed himself possessed of a genius for organization as well as for coördination. Yet almost as soon as he stepped into the office on the ninth floor of the new Interstate Commerce Commission building that had been hurriedly set aside for the use of the director-general of the railroads, he impressed into service the various working subcommittees of the Railroad War Board, but courteously and promptly dismissed that Board itself.

With the Railroad War Board out of the way the director-general moved quickly toward finding a substitute for it. At the beginning he said that he was going to try to surround

himself with the ablest and most experienced railroaders in the land—an advisory board, which would be in effect a railroad cabinet, divided so as to include a man from each of the great interests already concerned in national rail transport, one representing operation, another maintenance and equipment, another finance, another traffic, another public service and accounts, another law, still another labor.

Yes, labor. Labor at last was to sit in the high council of railroad transportation. That had a new sound in the game. Yet McAdoo was quick to include it in his plans. And at that time he added:

“I am putting in men of no partisan views—partisan neither to capital nor to labor. In every case I have tried to select men who will inspire confidence. I want men of broad vision.”

The man who dug the great tunnels under the Hudson River when every one else had pronounced the project as chimerical could hardly stand accused himself of any lack of vision. Moreover McAdoo's selections in nearly every case justified his words. He began by choosing as his right-hand assistant and general adviser Walker D. Hines, an extremely able New York lawyer, who in the forty-seventh year of his life was chairman of the board of the Santa Fé. On the average road the chairmanship of the board of directors is likely to be a sort of sanitarium for retired executives. Not so with the Santa Fé. Its late president, E. P. Ripley, the man who was instrumental in bringing it out of bankruptcy and up to its place as one of the greatest single systems in the United States, ten or twelve years ago was seeking a young man who could represent the road in New York, and represent it with the proper authority. He found such a man in Hines, then barely turned forty, and he never regretted his choice. Moreover Hines, in a brilliant legal connection with the Louisville and Nashville before going to the Santa Fé, had begun to acquire his remarkable knowledge of railroad conditions in virtually every section of the land.

The Santa Fé has always had much good motive-power, hu-

man and mechanical. McAdoo chose two of this first class, Hines and Edward Chambers, its former vice-president in charge of traffic. These men formed the beginning of his advisory cabinet. To them he added gradually several others—Henry Walters of Baltimore, chairman of the board of the extremely sound and conservative Atlantic Coast Line; John Skelton Williams, controller of the currency, who had been not only the president but really the creator of the Seaboard Air Line; Carl R. Gray, at that time president of the Western Maryland railroad and now occupying a similar post upon the Union Pacific; and Judge John Barton Payne, who also had served as chairman of the Shipping Board and as secretary of the interior.

Offhand these looked like good appointments; in reality too they *were* good appointments—able men in every instance; men of the broadest experience. But the men on the inside—those who have a thorough understanding of the wheels within wheels in the working of the big national railroad machine—saw more in these appointments than a mere search for transport ability.

“Walters and Williams,” they said, “Atlantic Coast Line and Seaboard Air Line. It’s a hard dig at Fairfax Harrison.”

They were referring of course to the brilliant young president of the Southern railway, who was the chairman of the Railroad War Board, constituted, you will remember, as a war measure by the railroads themselves. In that job, and against no small odds, Harrison had won a fair measure of success. He felt keenly the slap at him in the McAdoo selections; he felt another when he was virtually deposed from the control of the railroad which had been his great pride and ambition, and young Mr. Markham brought down from Chicago to be the McAdoo generalissimo of all the roads in the southeastern corner of the land at Atlanta. Yet that last thrust was hardly greater than the first, when the ranking heads of the two railroads which had been the hottest enemies of the

Southern in that which it regarded peculiarly as its own territory were lifted to eminence, while the president of the Southern was permitted to retire to Richmond as merely its corporate head, without one atom of authority over the operation of his road.

Those who know Fairfax Harrison know how these two blows must have cut. He is a man of intense pride as well as patriotism, a railroader who almost plays the lone hand but plays it very well indeed. A gentleman to the core, born of the gentlest of Virginia blood and lineage—his father private secretary to Jefferson Davis, his mother a gifted American novelist, his brother one-time governor-general of the Philippines—his pride in his family has for years past been exceeded by his pride in the railroad which, as a logical successor to the late Samuel Spencer, he had been upbuilding. Fairfax Harrison himself is a *litterateur* of no small merit. He has made translations of the classics, while to him has long been ascribed the composition of an essay in Latin on the proper carving of Virginia ham. Yet I dare say that in none of his literary excursions has he ever reached greater charm than in the booklet which he wrote eight or nine years ago on the tragic sacrifices made by the men of the Southern who strove to keep their road open and in operation during the terrific floods of 1913.

Yet Harrison was not the only man to be reduced menially as well as physically by the director-general of railroads. Carl R. Gray, himself one of the most lovable men in the business, was then president of the Western Maryland. He came to it from a high office with the 'Frisco. That railroad, originally a small local affair largely financed by the city of Baltimore and for many years terminating at Hagerstown in the Cumberland valley, had been built, largely by Rockefeller capital, through to Cumberland and Connellsville (by connection to Pittsburg), paralleling the main stem of the Baltimore and Ohio for virtually the entire distance. It was a real thorn in the side of the B. & O. Mr Gray was quickly elevated to a

high post in the Railroad Administration. This was a distinct thrust at Daniel Willard.

It will be recalled that the distinguished figure of Daniel Willard, president of the Baltimore and Ohio, loomed large in the Railroad War Board. Mr. Willard was doomed to feel the displeasure of official Washington. Just why, I never have been able to understand. He went to the service at the very outbreak of the war and gave himself unreservedly to Mr. Wilson and his associates. And at the very hour of the Armistice he was in army khaki, prepared to sail overseas to undertake the operation of the entire system of French railways, which were beginning to go down under their terrific burden of more than four years.

Yet Mr. Willard's reward for all of this was removal from the actual operation of his road. Samuel Rea, the president of the Pennsylvania, suffered a similar fate. Yet this was not all. An official order was sent out from Washington to the effect that these presidents were to be deprived of the use of their official cars—the phrase “private-car” long since has come into disrepute; it smacks too much of junketing. A fairly circumlocutious method was offered by which these gentlemen could occasionally avail themselves of their cars. They declined to avail themselves of so patronizing an offer. Mr. Rea's car finally was assigned to an operating officer of the Railroad Administration; Mr. Willard's gathered dust for two long years in a corner of the trainshed of Camden Station, Baltimore.

Mr. McAdoo's answer to the quiet but strenuous protests that went to the supreme authority at Washington against his treatment of Mr. Willard and Mr. Rea was extremely disingenuous. He disclaimed personal feeling and said that his act was the following out of an established policy. Officially that policy was thus stated in his own words:

Inasmuch as “no man can serve two masters,” and the efficient operation of the railroads for winning the war and the service

to the public is the purpose of Federal control, it was manifestly wise to release the presidents and other officers of the railroad companies, with whose corporate interest they are properly concerned, from all responsibility for the operation of their properties. . . . All ambiguity of obligation is thus avoided. Officers of the corporation are left free to protect the interests of their owners, stockholders, and creditors, and the regional and operating managers have a direct and undivided responsibility and allegiance to the United States Railroad Administration.

He then went ahead in accordance with this announced policy and appointed Federal managers for the larger roads, incorporating into their direction smaller lines, closely affiliated or connected with them. But in almost every case the president of the railroad became its Federal manager, invariably at a lower salary than the private corporations had paid. Mr. Harrison, Mr. Willard, Mr. Rea, Mr. Kruttschnitt, and Mr. Underwood (of the Erie) were extremely conspicuous exceptions to this rule.

I am setting down these intensely personal episodes in the conduct of the Railroad Administration under its first director-general solely for one purpose—they have had a very large bearing on the present-day plight of our railroads of the United States. The bitternesses that were then engendered have not ceased. I do not feel that Mr. Harrison or Mr. Willard or Mr. Rea, to-day restored to their old positions and influence, now harbors a single grievance against Mr. McAdoo because of them. The damage that he did has all been done, in the thrust against the morale of the rank and file of our American railroad organization. McAdoo talking to the men from the rear end of his own private-car at Pueblo and at El Paso and telling them that at last they were come into their own rights did not begin to do the damage that the whispered rumors, running here and there and everywhere, of what the director-general was doing to the former big bosses of great railways

did to our old-time traditions of railroad respect and discipline.

In giving labor a seat in his cabinet McAdoo did a big thing. In making speeches such as those at Pueblo and at El Paso he did a far smaller thing, to put the matter very lightly indeed. In the innuendo of his attitude toward a group of important railroad presidents a very great wrong was done unquestionably.

The functions of the director-general's cabinet were national. In addition to its members the steersman of the craft chose regional directors, at first (and with but a few changes thereafter) as follows: for the extremely congested lines north of the Ohio and east of the Mississippi, A. H. Smith, president of the New York Central; for the lines of the Southeast, as we have just seen, C. H. Markham, president of the Illinois Central; and for those of the rest of the country, R. H. Aishton, president of the Chicago and Northwestern. Later Mr. Aishton's huge territory was subdivided and three sub-regions made of it. In a similar fashion New England also was made a sub-region, and James H. Hustis, the very popular president of the Boston and Maine, placed in charge of it, after him came Percy R. Todd of the Bangor and Aroostook, an executive equally experienced in New England railroading.

Mr. Smith was the very first of these men to be chosen. He received a telephone request to come to Washington one day late in December, 1917. Boarding a midnight train, he was in McAdoo's office the next day. The director-general of the railroads notified him that he had been drafted to work out the fearfully congested situation in the Northeast. Without a word of comment Smith turned on his heel, walked to a desk in the corner of the room, and, picking up a block of paper, began inditing detailed telegraphic instructions to the presidents of the roads in his new jurisdiction as to their part in the great drama of national control whose opening scene was so close at hand. A little later he returned to New York. And at noon on December 28, 1917, the exact time set by President Wilson for the curtain to rise on government operation of the con-

tinental railroad system, Mr. Smith stood in his window on an upper floor of the Grand Central Terminal, and, looking down at the maze of tracks below him, trains coming, trains going, began the dictation of a short statement as to the history, the size, and the strength of the property he headed.

"I want it to go into the record," said Smith. "The opportunity might not come again."

He turned immediately to the work in hand. There was plenty of it to be done. The great city around about the terminal was on the edge of panic. There was a fuel famine and no promise of relief. New York at last was paying the penalty of her medieval, not to say archaic, system of distribution. At last the war was very real and very close at hand. They were saying that many of the schools would have to close, that there was a possibility the theaters would have to shut down each Monday night. Poor New York! She did not then know that the worst was yet to come!

All this occurred with 300,000 tons of coal upon the Jersey side of the Hudson River opposite the city, while in the midst of a winter of almost unprecedented bitterness an ancient lighterage system struggled with ice hardly less thick than that which once sufficed for a footpath for Henry Ward Beecher from New York to Brooklyn, and could bring less than 30,000 tons of coal a day across the river. Nor was this all—no, not even a reference now to the freight upon the Jersey meadows. Know now that the greater part of that accumulated 300,000 tons of coal was in cars and that production at the mines actually was being slowed down by the delay in the return of these cars.

"Open the Pennsylvania tubes to the coal trains!" shrieked the radicals of Manhattan. "Give us fuel trains and food trains instead of Florida Limiteds! Put them through at the rate of fifty, one hundred, one hundred and fifty a day, if needful!"

Some of these lost their heads. Smith did not lose his. Neither did he impose any more humiliation upon the head of

his great competitor. He does not do business that way. Instead he gave careful heed to the terminal possibilities of the Pennsylvania, the traditional and very real rival of the road he himself headed.

"We may possibly make a freight use of the tubes," he said quietly, "but it will be a moderate use. I shall limit the length of the trains to thirty-six or thirty-seven cars, which really is no train at all. For I do not want to see one of those fifty-ton battle-ship coal gondolas jumping the track in a tube which was not designed for it, and so completely blocking the line. I am going to be in a position to hand the terminal back to the Pennsylvania in quite as good condition as I found it."

Then he made further explanations. After all the Pennsylvania tubes, thrusting themselves across the island of Manhattan, are even in an emergency of little or no freight use to it. They are too deep to be of freight service to the heart of metropolitan New York. To Brooklyn, with a population almost equal to that of Manhattan, to Queens, and to the Bronx they eventually were made of some slight service.

This was not the big part of Smith's job, however. He made a quick survey of the entire situation in his big district; trains and cars cluttered here and there and everywhere. For the final thirty days of private operation the situation steadily had been growing worse. In the districts roundabout Pittsburgh and Philadelphia and New York it had become intolerable. Take, if you will, the industries in those vast manufacturing districts and consider them multiplied tenfold, their influx of fuel and of raw material increased in like proportion, and so with their output. Add these industries one to another and see them in units of tens of dozens of trains, of hundreds and thousands of coal-cars and flat-cars and box-cars. And on the other hand, see all of these poured upon railroads that had been steadily growing weaker for eight or ten years—more rapidly weakened, however, in the last four months than in the entire three years that preceded them. Bear in mind their tremendous loss of man-power through the draft, consider the

gradual wearing down of engines and cars and tracks and terminals toward the breaking point, and wonder not then that we had congestion and much worse east of the Mississippi and north of the Ohio.

Throughout that autumn of 1917 we watched the bending of the rod of the railroad just as we had watched it bend and then recover again through the two hard winter seasons that have preceded this one. It bent further this winter than ever before—the traffic was so much greater, and the facilities with which to meet it so much weaker. No wonder that freight moved slowly, more slowly, most slowly, and in many cases finally ceased to move at all; that upon the Jersey meadows outside of New York were 30,000 car-loads of merchandise that could not be moved up to that port and to the ships waiting to carry it overseas. At one time 150 ships stood waiting for coal alone in New York Harbor. And overseas was a great war in its critical stages. No wonder, though, that coal began coming in dribblings to hearthstones that were whining for tons of it, that finally it ceased coming at all for whole days, while great and ordinarily comfortable American cities shivered and watched their death rates mount higher than they had mounted in many a year.

It was a man-sized job that confronted A. H. Smith. Like a real railroad man he handled it. He went in at once upon it. He began to do things. He issued immediate embargoes against shipment into the New York district of anything save food, news-print paper, live stock, perishable freight, and freight consigned to the Government. He did more. With a great map of metropolitan New York and its railroad terminals spread before him he began ordering freight concentrated west of Buffalo and Pittsburg and south of Washington into the trunk-lines which variously best serve the great group of cities that constitute the metropolitan district of New York. The Baltimore and Ohio for instance has exclusive terminal facilities upon Staten Island, which with its many ship-yards and wharves is an important freight consignment point.

In ordinary times, when the situation was dominated by competitive conditions, a car-load of freight offered the New York Central at Toledo or Detroit would be carried on its lines to New York and then floated to Staten Island by car-ferry. In this non-competitive war situation, in this hour when the temporary continental railroad system of the United States was being born, such a car would be taken by the New York Central from Toledo or Detroit to the Baltimore and Ohio at some point west of Pittsburg, and then over it to Staten Island by the shortest possible route.

What Smith was doing in New York his fellow regional directors in Atlanta and in Chicago also were doing. Order was being worked out of chaos. The great railroads of the United States, even temporarily and very hastily welded into a single national system, showed good results of efficiency and economy, just as some of their far-sighted private operators had predicted more than two decades ago. Released from the shackles of the Sherman Anti-Trust Law—Congress had refused such a release to the Railroad War Board but quickly granted it to McAdoo—and from the conflicting regulatory commissions all the way across the land, they were able to simplify and unify their facilities—even though many times at public cost and inconvenience—in a way that enabled them not only to handle the pressure of war traffic and in an admirable fashion but also to show great economies upon their cost-sheets.

To come to actual cases: It was good railroading when the centralized Washington administration began assembling various sections of various lines so as to gain not only more direct routes between important traffic centers but lines of lowest possible gradients as well. In the West particularly, great progress was made in this direction. For instance in the old days of competitive railroading the Southern Pacific quite naturally operated its through route from Dallas or Fort Worth to Los Angeles and San Francisco over its own tracks through San Antonio or El Paso. Of course the old-time and somewhat

unfortunate Texas and Pacific had a far shorter route from Dallas and Fort Worth direct to El Paso, but the competitive situation, the fact that it was the Texas and Pacific and not the Southern Pacific, prevented it from getting much volume of traffic for its short line. Under government unification the T. & P. line came into its own, with the result that 500 miles were taken off the through route between the important North Texas cities and southern California—with great resultant time and operating economies.

Similarly, there arose a war-time assembled through line from the oil-fields at Casper, Wyoming, to Montana and Puget Sound points, 880 miles shorter than the route which the competitive situation formerly forced. Freight from southern California to Ogden was hauled 201 miles less than by the pathway formerly used; while the Railroad Administration route between Chicago and Sioux City was 110 miles shorter than the old, and 289 miles were saved in the through traffic between Kansas City and Galveston and Houston. Multiply these examples and it is easy to see how in a period of sixty days in the summer of 1918 nine thousand freight-cars were so rerouted as to effect a saving in mileage traveled by each car of about 195 miles, or a total saving of about 1,754,805 car-miles.

To be ranked with this sort of operating economy was the work undertaken by Regional Director R. H. Aishton at Chicago when early in the spring of 1918 he began consolidating train movements so that instead of the several competing trunk-lines coming down from out of the Northwest, each operating competing through freight-trains each day into the great terminal and interchange yards at St. Paul, and there shifting and resorting their cars incredibly for distribution between the six trunk-lines leading for another five hundred miles down into Chicago, through trains were operated solidly from the Puget Sound points through to Lake Michigan. For through freight the great railroad yards upon the line between St. Paul and Minneapolis represented no more of a stop than

was necessary for changing engines, cabooses, and crews. Moreover these through trains were distributed in alternation between the Northern Pacific and Great Northern lines from the Pacific coast down to the Twin Cities, but because of its superior mileage and gradient conditions they were handled on to Chicago almost exclusively by the Northwestern.

Nor was Chicago—with almost inevitable traffic congestion, despite the fact that it now bears upon its western rim the largest interchange and clearing-house yard for freight-cars in the entire world—a railroad point big enough to break this simple scheme of through service. Take the export corn specials out of the Missouri valley. One of these trains, let us say, consisted of thirty-one cars from Omaha and five cars from Sioux City, all moving under special government permits, and was routed intact from Omaha to Philadelphia. It came east over the Northwestern to a point well outside of the Chicago congested district. There it was turned to the tracks of the Elgin, Joliet, and Eastern, one of the outermost of the belt-line railroads which encircle Chicago. The Elgin, Joliet, and Eastern in turn delivered the train—intact and unchanged, you will remember—to the Nickel Plate, which at Buffalo handed it to the Lackawanna, which in turn carried it as far as Scranton, giving it there to the Central Railroad of New Jersey and the connecting Philadelphia and Reading for prompt handling through to tide-water and a waiting ship at Philadelphia. There was no switching and but little delay en route, and the train generally went through from the Missouri to the Delaware in considerably less than a week. Such a prompt through movement, with its saving of time and money, was quite unheard of in the days of competitive railroad management.

All the reroutings and consolidations of this sort by no means had been confined to the western portions of the land. In the East many others were made, particularly in the congested sections of war-munitions manufacture, where, in addition to great numbers of war brides and shipyards and camps and

cantonments, requiring not merely outbound shipping facilities but large quantities of raw materials and fuel, there had been a vast movement of coal for both domestic use and export. In the handling of this coal ingenious savings were made, both in the routings and in the details of train operation. Roads and portions of roads, formerly in bitter competition, were joined together in a way only possible under absolutely unified and autocratic control. And in some cases the routings were so made as to divert the great streams of through freight traffic, in order to avoid areas already badly congested. Thus Atlantic-bound freight coming up into St. Louis from the Southwest was sent far to the north and even through Canada before it reached the seaboard. A glance at the map and a fair understanding of the present traffic situation will show the necessity of this. The lines that reach into the coal-fields of eastern Kentucky and West Virginia and western Pennsylvania were much burdened these months. It hardly was fair to ask them to carry much through freight upon their already heavily laden shoulders. And the Pittsburg district, with its various narrow *impasses* made by broad rivers and sharp-sided mountains, is a railroad abomination—a fearfully congested traffic gateway which, by reason of those selfsame rivers and mountains, is hardly capable of radical enlargement, even at great cost.

The railroads that run along the south shore of Lake Erie, ample as are their facilities, already had a full load of traffic from Chicago, the West, and the Northwest. So the traffic from St. Louis and the rich country back of it must needs cross the Chicago currents and go to the north of Lake Erie. The Wabash—one of the least understood and most abused railroads in America—in those days first began really to justify the fine strategy of its position. It became the main factor in bringing St. Louis freight up to Detroit, where it no longer crossed into Canada by ferry but through the great tunnel which the Michigan Central completed about twelve or fourteen years ago; and by sweeping easily along through the

gradeless tangents of the Province of Ontario that freight re-entered the United States at the Niagara frontier, and so on to New York or Boston by any one of a half a dozen uncongested traffic routes.

These things apparently could not have been done under private management; at any rate they were not done under private management, although it is but fair to say that some of the far-sighted railroaders who sat at the table of the former Railroad War Board—which had attempted at the eleventh hour to consolidate the lines and so save the obvious perils of government operation, even as a temporary war measure—had the vision of these very consolidation economies. They had the vision but not the power. Too many powerful considerations bore in upon them and bore them down. Regulation, which was not fair regulation, the inability to finance the lines with rates fixed and expenses increasing by leaps and by bounds, competition refusing to bury itself even in emergency, even traditional jealousy—all these things prevented the Railroad War Board, constituted by the roads themselves to have a sort of supreme authority, from accomplishing its real purpose. These things were accomplished by the United States Railroad Administration and William G. McAdoo, as director-general of railroads, almost at the very beginning.

I have set down these operating details of the United States Railroad Administration under its first director-general at some length, not because of any desire to glorify Mr. McAdoo but because I may want to refer to them again in the final chapters of this book when I am endeavoring to show the folly and the waste of many of the phases of our competitive system of railroading in the United States. Failure as it was in many ways, the McAdoo episode was perhaps valuable after all as a laboratory experiment in rail transport. I am not sure but that as such it was worth every cent that it cost; and its cost was not small. For some years past, before the coming of the war, a certain proportion of our railroaders had been getting

into something of a rut, to put it lightly. McAdoo came along and, if he did nothing else, succeeded in shaking them well out of that rut. Yet it is but fair to recall again that the Railroad War Board might have done the same thing had it possessed two great powers that the United States Railroad Administration possessed—absolute authority and virtually unlimited financial resources. McAdoo, on the one hand, might order new locomotives by the hundreds and box-cars by the thousands—no matter what the price, we were at war—and upon the other, he could—and did—raise the railroad tariffs, both freight and passenger, to a point hitherto deemed virtually prohibitive. He raised the rates all the way from 25 to 35 per cent., and the railroads but two or three years before had found the Interstate Commerce Commission deaf to their appeals for mere 5 and 10 per cent. advances.

CHAPTER III

THE UNITED STATES RAILROAD ADMINISTRATION (CONTINUED)

I BEAR no brief for Mr. McAdoo. On the contrary I have been one of his most persistent, although, I trust, consistent, critics. In the columns of the "Saturday Evening Post" and other widely circulated publications I have tried to set down fairly, impartially, and thoroughly both the accomplishment and the shortcomings of that remarkable organization, the United States Railroad Administration. And with this final chapter written I shall close for myself, I hope forever, the recital of its history.

It is but fair to say that even though McAdoo's great economies of operation through radical consolidation and reroutings were obvious, it took courage, none the less, to put many of them into effect. Tradition, the sentiment built up through long years of hot competitive practice, local pride and local spirit here and there and everywhere, had to be met and overcome successfully, even though the war-time issue was to come into the reckoning. McAdoo has never been known for lack of courage. He reached out here and he reached out there and generally he attained his desires.

"You talk about Fairfax Harrison. Of all the men in authority in Washington, It was McAdoo who really played the lone hand." So speaks a man who from the very beginning of the war overseas made a careful study of the Administration and its human components. He speaks the truth—and does not.

"The trouble with McAdoo," says a radical who is immensely interested in the entire railroad situation, "was that he was in

the hands of the old railroad gang and controlled body and soul by them."

He also speaks the truth, and does not. I presume that we may translate the "old railroad gang" into the group of experienced and very able and honest railroad executives that the first director-general gathered about him, and who without exception rendered him efficient service. Mr. McAdoo himself says this. And he ought to know.

In the preceding chapter we saw some of the sweeping changes and economies that were wrought in the freight operation of the railroads under governmental control; the passenger ones were even more dramatic. We have already seen how at a fell swoop the excellent service between New York and Washington was smashed almost into smithereens, and how the good horse-sense of the first director-general came to the rescue then and there and restored a service that would enable men to travel back and forth between these cities on their war-time errands in a degree of comfort sufficient at least to render them best able to carry on their press of unusual duties. Other services were not so restored. The Broadway Limited, the crack twenty-hour train of Mr. Rea's Pennsylvania railroad, was an early sacrifice. In May, 1918, Mr. McAdoo approved of a sweeping economy in the western portion of the country, the territory west of Chicago and St. Louis. In this great slash alone estimated yearly savings of 11,728,000 passenger train-miles were made. These savings were accomplished chiefly by abandoning duplicate and expensive fast train services (please also note this for future reference) between Chicago and the Pacific coast cities and assigning, supposedly to the shortest and most direct route in each case, the fastest through service. Under this scheme the Santa Fé became the preferred route between Chicago and Los Angeles; the quite logical grouping of Chicago and Northwestern, Union Pacific, and the former Central Pacific division of the Southern Pacific, from Chicago to San Francisco; the Burlington and the Northern Pacific to Portland, and the Milwaukee to Seattle.

These selections were made arbitrarily. They cost many heartaches, however. The Rock Island—the shortest route between Chicago and the important railroad gateway of El Paso, and but thirty-five miles longer between Chicago and Los Angeles—watched the decapitation of the Golden State Limited, which it had worked so hard to upbuild, with feelings of great bitterness and regret. It felt down in the bottom of its heart that it had been discriminated against. When peace came again—if ever it should come again—and the railroads were restored to their private operators—if they ever were to be restored again—the Golden State Limited would have to start once again at the very bottom of the ladder.

The most notable consolidations of passenger service under the government administration came, however, in the central portions of the land. In the district about Chicago under private and competitive control there was (and to-day is once again) a great waste of through passenger-train service. With six competing railroads from Chicago to the Twin Cities, six to Omaha, six to Kansas City, four to St. Louis, and three to Cincinnati, and with almost every one of these roads trying to maintain a service as good as its competitors, if not better, there was and is a vast preponderance of through passenger-trains, many times to the cost of weaker or branch lines, even of well-to-do-systems. It is not at all uncommon for a branch line, particularly if it passes through a non-competitive district, to be paying with its all-too-few and overcrowded local trains for the extravagances of the underfilled through ones upon the main line. The little wheezy locomotive and the two forty-year-old battered day-coaches of the down local to Willettsburg or Sand Corners was and still is the upkeep of the lordly limited all-Pullman and aristocratic from the point of its crack new locomotive to the far tip of its brass-railed observation-platform. Do not forget that. And also do not forget that a good proportion of the voting population of any State lives upon the branch lines, which may have accounted in the past for some pretty radical railroad legislation and reg-

ulation. Here is a point that the average railroad operator, with his nose close down to freight ton-miles, may overlook. He may have and frankly express a contempt for the passenger service but it is at all times the chief point of actual contact between the railroad and its patrons.

Moreover from Chicago to the group of cities a night's ride distant from it in several directions the plethora of superb trains moved in competitive squadrons. By that I mean, even though there were on four railroads between that city and St. Louis before the coming of the war fifteen fast through trains in each direction, there were to all practical purposes but three or four. For competition so bunched the trains that there was an important group of through expresses leaving Chicago at noon and another important group at midnight, with two or three less important slower expresses at nine in the morning and again at nine in the evening. An intelligent centralized management would seemingly have found it possible so to distribute fifteen through trains that there would have been a through train from Chicago to St. Louis—or the reverse—almost each workaday hour. The through service between New York and Washington and between New York and Boston is so distributed.

Even under centralized control, however, such an even distribution of passenger-trains between midland cities of the United States is not entirely possible. For even in the case which we have before us, there are important connections to be reckoned with, both at Chicago and at St. Louis. These trains must be met, and if the best through passenger-trains for the Southwest leave the St. Louis Union Station at about nine o'clock in the evening, the resident of Decatur, which is on the main line of the Wabash, and of Springfield, which is on the main line of the Chicago and Alton, should in all fairness have an equal chance at them.

Yet, despite this hindering factor, the McAdoo centralized authority succeeded in cutting the fifteen through trains in each

direction down to nine and in slightly spreading the leaving times. The result apparently worked little hardship to the through traveler of war-time days between Chicago and St. Louis. The train on which he rode might be a little longer and a little better filled than usual, but its running-time and its equipment, save for the probable elimination of the observation-car, were virtually unchanged. And 15,706 train-miles and 9,538 tons of coal were being saved in Chicago-St. Louis passenger service each month.

But how about Monticello?

Monticello, Illinois, is not a big town, as big towns go. Yet it is an enterprising county-seat of some 2,000 people situated on the Chicago-St. Louis main line of the Wabash just a few miles north of Decatur. And it has definite rights. Do not forget that. In the old days of ante-bellum private control—sin-filled and really wasteful competitive control—there were four through trains and two locals through Monticello in each direction each day. And the Monticello banker or merchant who wanted to run down to St. Louis and come back at night had an easy affair of it. But with the government train consolidation he could get up in the middle of the night and catch the 2:30 train south or else wait for the next express at 4:05 in the afternoon. The Government was not particularly worried about him.

Let me repeat. Monticello has definite rights to adequate railroad transportation. And this holds true whether that transportation comes from the Government or the individual. Monticello—ten thousand Monticellos, if you please—has a considerable voting population. And once the real war emergency was passed and the Armistice safely signed, ten thousand Monticellos began asking if government operation was going to offer them no better relief from the ills of private operation. It was as nothing to them that there had been a saving of trains and of train mileage between Chicago and St. Louis with no apparent diminution of the service between those two metropolitan cities; they simply knew that there had

been a great lessening of their own service. And while they were willing to accept such a lessening as a part of their war sacrifice they did not intend to accept it as a permanent transportation condition, either from the Government or from private capital.

This general plan held, however. There are some pretty big and powerful Monticellos between Chicago and the coast. Denver is one of them, Omaha is another, Kansas City a third. And because, to make a single instance, any one of these cities demands a fairly quick and efficient service to Portland and the Puget Sound points, it was necessary after a time to modify to some extent the simplified route plan and to give these intermediate points through train service, or at least through Pullman service.

These changes and others like them have brought great savings in passenger mileage. That cannot be denied, even though one is tempted to add a doubting corollary as to the shattering of the finest passenger service that any land ever has received. The war crisis demanded curtailments. The railroads themselves had recognized that, even before the coming of the McAdoo administration. From May 1, 1917, up to the end of that year their War Board succeeded in reducing the passenger service by 28,656,983 train-miles. Yet this was not a circumstance to the slashing done by the Federal Administration. In September, 1918, McAdoo reported to President Wilson that he had succeeded in eliminating passenger-trains to the extent of 47,420,000 additional miles a year, a really astounding total.

But in all probability the most popular economy of this sort that McAdoo succeeded in bringing about was in the consolidation of passenger terminals across the land, all the way from the biggest towns down to the very smallest. He began at the top in the city of New York. The Pennsylvania railroad since the opening of its wonderful new station in Seventh Avenue in that city in November, 1910, quite naturally had held it exclusively for itself and for its subsidiary, the Long Island railroad. In that tight stand it was right from every compet-

itive point of view. It had taken the great engineering problem and its financial risk entirely upon its own shoulders; shrewd railroaders had shaken their heads dubiously as they contemplated the daring move; and there was no reason why it should share the fruits of its enterprise with its competitors.

But the competitive situation had been eliminated. Therefore McAdoo did not hesitate in personally ordering that the highly competitive Baltimore and Ohio, as well as the non-competitive Lehigh Valley (which up to that time had been using the old Pennsylvania station in Jersey City), should bring its through trains into the Pennsylvania terminal on Manhattan Island. (Incidentally, at the eleventh hour of the existence of the Railroad War Board the Pennsylvania had proffered the use of its station for this purpose.) The tickets of the B. & O. and the Pennsylvania between New York and Washington and intermediate points were moreover made completely interchangeable.

The Pennsylvania people did not enjoy these orders, even though they had proffered the station at New York. But they were good soldiers. The country was at war, and they complied readily with war-time orders, no matter how unreasonable they may have seemed to them. *

In a similar fashion the Southern Pacific people made wry faces over the order that admitted the Santa Fé into their ancient train-shed and "mole" at Oakland, opposite San Francisco. Their position was not so well taken however. Even in the competitive era the fast ferry-boats of the Santa Fé, coming from its rail terminal at Richmond, had entered the same terminal with the S. P. at San Francisco—the great union ferry-house at the foot of Market Street. And had not the Santa Fé, as the longer route, been compelled as a war measure to sacrifice its two pet trains between San Francisco and Los Angeles and San Diego, the precious Saint and the Angel?

These consolidations—there were many similar ones in the freight terminals as well—went on all the way across the land. Where there were two or more engine-houses in a place fairly

close together, and it was humanly possible so to do, they were consolidated. Trackage at terminals was simplified; for instance at Chicago the trains of the Baltimore and Ohio and Pere Marquette systems, which formerly had entered their passenger stations by a rather circuitous route, were now sent in to them over the tracks of the Pennsylvania, and a saving of approximately seven miles and forty minutes of running time made.

Certain captious critics of Mr. McAdoo's constructive policies have seen in these terminal and other physical consolidations of the several carriers a deep-laid plot to "scramble the railroad eggs," which means so to weld the properties together that they could not be easily separated again. Despite the fact that the "unscrambling" has indeed been no particularly easy task, I do not see in McAdoo the deep-dyed villain that so many others perceive. I think that he consolidated these terminals and other operating devices in the interest of real war-time efficiency and economy, and for no other reason. That would seem at this time to be an impartial verdict upon his actions.

I am also setting these things down in some detail because they too are essential to a proper understanding of the final results of the nation's first sweeping experiment in centralized and governmental railroad control. The most of these operating economies were the accomplishments of the Railroad Administration of the sort which some time ago I characterized as obvious. Now consider a few of them that were strange—marvelously strange, you may prefer to put it:

The Railroad Administration sought as one of the first of its economies the consolidation of the various city ticket-offices that competition long ago had set out in the larger cities of the land, as well as the complete abolition of the so-called "off the line" offices—agencies in cities more or less remote from the actual territory of any given railroad. So far, so good. So far was obvious and sensible economy. If an office here and an office there had been retained for the essential

travel needs of the roads and their office forces and furniture had been brought together wherever it was necessary, the others being either abandoned or temporarily closed, there would have been no complaint. But the "winning of the war" took the strange effect in most of the large cities of the land that the Railroad Administration hired new office space—in Chicago it took virtually the entire ground-floor of a huge new sky-scraper on a ten-year lease at \$65,000 a year—and installed elaborate and expensive new mahogany office equipment. In New York alone four of these great new offices were fitted out, and many of the smaller and cheaper offices, abandoned, stood idle for months, while the rent went merrily forward.

These things were inexcusable. So were many others. Apparently the ordinarily astute first director-general made a great mistake at the outset. He did not realize perhaps that he was attempting to do two things at once—trying to solve an acute war problem as well as a great economic one that had been gathering urgency for nearly a decade before the coming of the World War. That at least is a kind construction to place upon his policy. And if it was indeed his policy it was not so very different from that which was followed those days by many other large activities down at Washington. Apparently we have not yet learned that almost any war problem is separate and distinct from those of our great social economic questions that are forever showing themselves in one form or another. For instance a good many of us confused the problems of the capitalization and labor of the railroads with that of taking them over as an emergency war measure, just as we repeatedly mixed up all sorts of social and economic problems with the making of an emergency war revenue tax.

Such apparently is also a fair construction to place upon Mr. McAdoo's remarkable activities in setting great forces of designers and draftsmen at work to create new "standardized" locomotives and cars for our temporarily nationalized railroad system. He made a widely circulated statement that he had found "2303 different styles of freight-cars and almost as

many different descriptions of locomotives" and that these presently would be reduced by his experts to twelve standard types of freight-cars, and to six standard types of locomotives of two weights each. Unquestionably our railroad freight equipment has stood and still stands greatly in need of much standardization, although the roads themselves long ago established enough of this to permit common operation of their cars. But I doubt if such a standardization program had any real part in an emergency war plan. I never have been able to reason that out to my own satisfaction.

Nevertheless McAdoo was satisfied with his own idea and in 1918 alone ordered 1430 of his standard locomotives and about 100,000 of the freight-cars, at prices enormously above those of peace days. The engines and the cars eventually were delivered. That they were good engines and good cars I do not doubt. But they have never enjoyed any marked popularity with the railroad operating people. They are a conservative lot, these old hard-shell railroad executives who still hang on to a remarkable degree all the way across the land. You cannot lead them easily to new ways of thought.

All these fine frills, introduced in the midst of one of the most acute national crises ever visited upon this country, cost the Railroad Administration much time and much money—much useless time and much money that might have been used to better advantage in other directions. Digress for a moment with me and compare the great and bulky operations of the Railroad Administration with those of its prototype across the Atlantic, the war-created Railway Executive Committee of England.

The war wreaked no ravages elsewhere in England more striking than those that were wreaked upon her railways. She was quick to realize the supreme importance of her rail carriers to her in her crisis. And so she reached out within a fortnight after the outrage of Louvain and, with the authority that had been given her long years before by Parliament, took over the rail lines and began operating them for the

national weal. There was no policy of vacillation on her part. It was a situation that she had anticipated and solved several years before the coming of the war.

Even before 1912 there was in existence an English body known as the War Council of the Engineer and Railway Staff Corps. This council consisted of the general managers (in England the post of general manager compares with that of the president of an American railroad) of the railways that in the event of war with a Continental power would have the most to do with military traffic. The council made elaborate and definite war plans. The possible invasion of the east coast was anticipated and detailed plans—even to the working out of actual train and engine schedules—were made for the evacuation if necessary of the population of east coast towns and cities and the movement of troops and heavy guns up to them. This council by 1912 had developed into the Railway Executive Committee, which was composed of the general managers of the twelve most important railway systems of Great Britain. It in turn formed an integral part of a Board of Communications, which included representatives of the War Office, the Admiralty, the Board of Trade, and the Home Office. Among these representatives was Sir Eric Geddes, then first lord of the Admiralty, a young Englishman of great promise and energy and to-day the British minister of transport.

The Railway Executive Committee went to its job quickly and without ostentation. While it sought to unify the operation of John Bull's railways so that he might help win the war most efficiently and most promptly, it had no false or grandiloquent ideas of creating a single national rail system overnight. It did not seek to tear down in a day what had taken the patient labor of years to upbuild. It sought not to standardize either baggage-cars or locomotives or dining-car meals. It even escaped having a director-general. Its printed forms were few and modest. It had no press-agent, no propaganda. Few people outside of railway and army circles even knew

of its existence. At the height of its endeavors it employed in its joint efforts a total force of not more than eighteen officers and clerks, who occupied two floors of a very small office-building directly across the way from the Houses of Parliament. It was an extremely simple enterprise. But it functioned and functioned extremely well.

Eighteen employees, as against more than twelve hundred at the very beginning of the United States Railroad Administration. Even to-day, two years after it has ceased to function, there are still several hundred retainers faithfully hanging on to their official jobs.

Mr. McAdoo might find some shrewd lawyer's way of proving his "standardized" locomotives and freight-cars a necessity for the winning of the war, even though the elaborate consolidated ticket-offices would not be so easy to explain. But just why orders should have emanated from his offices to place his name as well as his title upon every piece of printed matter issued by the United States Railroad Administration—even to the dining-car menus and even to each third mile upon the scrip-books issued for passenger travel—is particularly difficult to understand. Particularly so, as a war measure in a war for democracy, at any rate. The hub of the troubles with Mr. McAdoo seems to have been that he regarded a war crisis as a fit moment for an experiment in the details of a centralized railroad operation for the United States.

The chief criticism launched against the first director-general of the Railroad Administration is in regard to his handling of railroad labor. The more conservative the mind that you scratch upon this extremely delicate topic the more violent the immediate reaction. "Barron's Weekly," published by the "Wall Street Journal," regards Mr. McAdoo's attitude toward railroad labor as that of an arch-tyrant. But that is merely typical Wall Street attitude and to be dismissed as such. I had, as I have already said, very little sympathy with the director-general's addresses to the men at Pueblo and at El

Paso, where he assured them that at last they had come into the rights which had been denied them and that hereafter they were to receive the square deal. That was unnecessary. More than unnecessary, it was unfair. And more than that, it was an extremely dangerous doctrine to be preaching, particularly at that time. I cannot see how it possibly could do one single thing toward upbuilding railroad morale, the thing needed at that moment more than anything else. It could scarcely do else than lower that shattered morale still further. And it is possible that Mr. McAdoo regrets at this moment that he ever gave utterance to those two speeches, patting railroad labor on the back when railroad labor should have been congratulating itself that it was not conscripted and sent into the trenches. This is said with all deference and with a high regard for railroad labor in the United States.

On the other hand McAdoo did a most commendable and forward-looking thing when he gave labor a fair place in his official cabinet. Then and there he played a trump card that private ownership and operation of our railroads forever and a day had failed to play. He played another when at the very beginning of his term of office he put the entire question of wages in the hands of a competent commission headed by the late Franklin K. Lane, of whose fairness and ability there could be no question whatsoever. Mr. Lane knew men; he also knew railroads. He was perhaps the one man in the United States who might have taken the Railroad Administration and made an unqualified success of it. The ablest member of the Wilson cabinet, he was compelled to take a back seat in the big war drama. His capabilities and his experience were virtually ignored.

The Lane Commission went more carefully into the question of railroad wages than any one had ever before gone. It did what no individual railroad or group of railroads ever had the intelligence or the courage or the fairness to do—attempted to make some sort of impartial analysis of living costs to the railroader, and to use these as a basis for the fixing of his

wage. The question of compensation never has been placed upon a scientific basis.

The whole question was so big and so vital that even despite war-time pressure the Lane Commission took until May, 1918, to render its decision in favor of considerable increases to almost every type and rank of railroad worker. It unquestionably was a fair decision. Some that followed may not have been so fair; McAdoo unquestionably was led far afield himself by some of his advisers in elaborate and almost absurd attempts at standardized wage and working agreements. Yet at the time he took over the railroads for the Government the rank and file of railroaders unquestionably were underpaid—in certain cases grossly underpaid, and with their living costs rising by leaps and by bounds.

This entire question of railroad labor, its rights and its wage, is so involved and so complicated in detail that I am going to leave it for another portion of this book. It is enough to say here in review of the McAdoo administration that on December 15, 1917, thirteen days before he assumed control, the total number of employees upon the Class I roads of the land (87 per cent. of the railroad mileage of the country; all save the lines with gross revenues of less than a million dollars a year) was 1,703,685; on January 15, 1919, four days after he had relinquished control, it had grown to 1,843,530—an increase of 139,846, or 8.2 per cent. Yet the pay-roll expense, which had been 61.48 per cent. of all operating costs in 1917, had only risen to 65.62 per cent. It was not until the following year that an average increase of nearly 50 per cent. in railroad wages was granted, in the face of a still generally increasing cost of living.

But by the next year McAdoo was out of the job. The Armistice had been signed on November 11, 1918, and immediately thereafter Mr. Wilson gave heed to Mr. McAdoo's protestations that, the war-time emergency having passed, he was no longer needed and that he must go out into the world to recoup his shattered personal fortune. Accordingly he

ceased to be director-general of the United States Railroad Administration on January 11, 1919, and was immediately succeeded by his right-hand assistant, Walker D. Hines, whom we have seen already as the one-time chairman of the board of the immensely important Santa Fé railway system.

Hines is in many ways the very antithesis of McAdoo. There is nothing dramatic or spectacular about him whatever. On the contrary he is what he began to be, a typical corporation lawyer, cool-headed, judicial, shrewd, and honest. He probably would tell you himself that he broadened a good deal down in the offices of the Railroad Administration. I could see the changes. He became vastly more human; his Washington experience seemed to quicken his sympathies and to broaden his understanding of men.

His job was vastly different from that of McAdoo. The job, like the man, now lacked fireworks. There were no longer troops and their munitions to be moved double-quick to the seaboard; instead there was the rather leisurely return of the boys in khaki to their homes. Industrial production across the land was slackening, not quickly but appreciably. Oddly enough, however, railroad revenues still were increasing; they were not to reach their peak until near the end of 1920. Total operating revenues of the Class I roads, which were \$4,014,142,743 in 1917, and which had increased to \$4,880,953,480 in 1918, came to \$5,144,795,154 in 1919. In 1920 they reached, under the stimulus of tariff increases ranging from 20 to 50 per cent., the enormous summit total of \$6,171,493,301. In the first ten months of 1921, the most recent figures at hand, they were but \$4,672,651,346, as compared with \$5,082,819,687 for the same ten months of 1920.

It was under the Hines administration that most of the national working agreements were made, to which the private railroad operators were to take such extreme exception after the return of the properties to their control. But again I must ask you to defer comment or criticism until we have taken up the entire question of railroad labor as a sizable

problem by itself. It is enough to say here that Hines encountered a very considerable opposition when he raised wages generously, and raised rates not at all.

The fact remains, nevertheless, that Mr. Hines had in his stewardship a very thankless job at the best; it is always hard to follow a *prima donna* upon the stage. And McAdoo was some *prima donna*! Yet in loyalty and in energy Hines gave place to no one. He took the thankless job and made the best of it. He undermined his health by his devotion to it and received no praise from any quarter. His best reward must come in his own knowledge that, all in all, he did a good job, with difficult timber—the best of the subordinates of the Railroad Administration already were leaving it for future peace-time jobs of permanency—and with no encouragement whatsoever. And when the United States Railroad Administration ceased its active career upon March 1, 1920, and handed the railroads back to their owners for operation, I fancy that none was more rejoiced than Walker D. Hines.

What then was the net result of our first—and possibly our last—national experiment in the government operation of our huge railroad plant?

Even to-day, fully twenty-four months removed from the experiment itself, that is a difficult question to answer quickly and fairly. It is even difficult to say that, regarded merely as an experiment, it was a fair test. Certainly no laboratory expert deliberately would choose the critical final hours of a great war as an ideal time for dispassionate experimentation. It was in such hours that McAdoo, who was the head and front of the entire experiment, worked. When his successor came to high office the entire country was in the “let-down” that swept across the land as the very natural sequence of great national tension and endeavor.

The distinguished writer upon railroad economies, William J. Cunningham, James J. Hill professor of transportation at Harvard and himself for a time a subordinate executive of the Railroad Administration, does not believe that the experi-

ment was a success. In a recent issue of the "Quarterly Journal of Economics" he says:

Finally we ask ourselves whether our recent experiment in Federal control affords an adequate test of the desirability of a permanent policy of public ownership and management. The answer is plainly in the negative. The results in 1918 were favorable. In 1919 they were unfavorable. They were favorable in 1918 because at that time we were actively engaged in war, every influence of patriotism supported the Railroad Administration, and the organization was held at concert pitch by the critical military needs. The unfavorable results in 1919 may be attributed in greater part to the pronounced reaction from war-time strain, to the serious decline in traffic, and to the disintegration of the organization in a too prolonged closing period. No one should question the expediency of the Government's action in taking the railroads in the emergency. The centralization of power and the more effective coördination with other branches of the Government in the crisis made possible effective results in the utilization of equipment and facilities, which would have been much more difficult under private management. But it is not proper to treat that period as the test of what might be expected under normal conditions. As regards the unfavorable year, 1919, it would be as unfair to make that a test of government operation as it would be to take the present period of subnormal traffic and disturbed economic conditions as the final test of private management.

Those who advocate nationalization and look upon the results of both years as favorable to government operation must concede that they are to be credited to railroad men who rose to the emergency. The proponents of nationalization who are disappointed in the results of the two years attribute the failures to the fact that the real management during the greater part of Federal control was in the hands of men who were brought up under private management and who therefore could not or would not avail themselves of the advantages of unification.

It is plain therefore that nothing definite can be proved from the results of 1918-19. A real test of government operation is possible only if carried on over a longer period—one in which

business conditions are normal and in which political expediency would have normal play. The period under review was so abnormal that the results are valueless as guides to what might be expected from similar control or complete government ownership when normal conditions return.

I do not agree entirely with Professor Cunningham. I am not a "government ownership (or operation) man," but I feel that the experiment of the United States Railroad Administration, despite the tremendously difficult conditions under which it was operated, and also despite the fact that it was made at a very inopportune and inappropriate time, did have much real value. Unquestionably the time set for the experiment was far too short. Both Mr. McAdoo and Mr. Hines went on public record as saying that there be at least five years of peace to show their plan at its full worth.

But even in twenty-six brief and hectic months many things were developed that should be, that must be eventually, of great value to the present private operators of our railroads. Of many of these things as well as the possibilities for their development, this book will have to tell. The Railroad Administration at least pointed the way to them. In view of that, shall we not be broad enough to overlook its errors and its mistakes, and yet call it a real advance toward the solution of a national problem that advances sluggishly to that end?

CHAPTER IV

THE RETURN OF PRIVATE OPERATION

BEFORE the roads could be actually handed back to their owners for operation once more, it was highly necessary of course that a definite plan be formulated, not only for the method of transfer but for the protection of the roads against the deficit that was piling up steadily against them. Congress, which hates to be definite about anything, wrestled with the problem through dreary and seemingly endless weeks, and then in the last few days—nay, even hours—before the date set for the return of the properties—March 1, 1920—passed the hastily constructed and far from satisfactory Transportation Act, which speedily went to President Wilson at the White House and there was signed by him.

There has been so much discussion, so much argument pro and con, about this measure that I am going to present a carefully made resumé of it, originally prepared for a group of business men who sought to make a most impartial study of the measure. The act itself provides that the railroads of the United States shall be operated by private corporations under a comprehensive system of government regulation. One of the very best things about the act is that in its very essence it represents a fair interpretation of the feeling of the majority of the American people after two years of government operation. That that majority did not take into account the great difficulties under which both McAdoo and Hines worked is not germane to the present point. It saw their mistakes—the waste as well as the many efficiencies of the Railroad Administration—and it demanded a prompt return to private

operation. Under the pressure of this public opinion—some of it very skilfully aided, to be sure, by inspired propagandists—the members of Congress who framed the Transportation Act were almost unanimous in their honest belief that in the hands of private corporations the railroads could be operated more economically and more efficiently and would give better service than would be possible under government operation. The Transportation Act came as a very natural sequence to such a belief.

The most important provisions of the act are:

- (1) That on March 1, 1920, Federal operation shall cease and the railroads shall be returned to private operation.
- (2) That under a new rule of rate-making the railroads shall be assured adequate revenues; and adequacy shall be defined in the first two years as a net return of $5\frac{1}{2}$ or 6 per cent. on the fair value of the property as determined by governmental authority.
- (3) That during the transition period the Government shall aid in restoring the financial stability and the credit of the railroads:
 - (a) by continuing the government guaranty of a standard return for six months after the roads are returned to their owners;
 - (b) by creating a revolving fund of \$300,000,000 from which the roads may obtain under certain conditions short-term loans to meet their most pressing needs;
 - (c) by extending the carrier indebtedness for capital expenditures made by the government during Federal control for a period of ten years with interest at 6 per cent.; and
 - (d) by the creation of a reserve fund containing one-half of the excess earnings of those railroads whose net earnings exceed the 6 per cent. specified in the rule of rate-making.

- (4) That the rates and services of interstate carriers shall continue to be regulated by the Interstate Commerce Commission; that the commission shall be enlarged by the addition of two new members, making eleven in all; and that the commission shall have authority:
- (a) to make inquiry continuously concerning the transportation facilities and services of the whole country, and when and how they should be improved; the state of the credit of all common carriers; and the new capital which the public interest may require any carrier to secure;
 - (b) to permit the consolidation of two or more carriers provided that such consolidation is in harmony with a comprehensive plan (previously adopted by the commission) for consolidating all of the railroads of the country in a limited number of strong competing systems, and also provided that, in the opinion of the commission, the proposed consolidation is in the public interest;
 - (c) to fix interstate rates that shall be just, reasonable, and adequate;
 - (d) to determine the valuation of railroad property;
 - (e) to prescribe a uniform accounting system for all carriers;
 - (f) to exercise exclusive jurisdiction over capital expenditures and the issuance of securities by carriers;
 - (g) to prohibit the extension of present lines or the construction or acquisition of new lines by any carrier until it has obtained from the commission a certificate of public necessity and convenience;
 - (h) to require the construction of docks and rail connections between rail and water carriers;
 - (i) to provide when necessary for the redistribution of traffic and for joint use of terminals;
 - (j) to exercise jurisdiction over the use, control, and supply as well as the movement, distribution, and

interchange of locomotives and cars and also over the supply, movement, and operation of trains; and (k) to order a carrier to install automatic train-stop or train-control devices.

- (5) That the wages and working conditions of railroad employees shall be regulated by a Railroad Labor Board composed of three representatives of the carriers, three representatives of the employees, and three representatives of the public; and that disputes between the carriers and their employees in regard to rules or working conditions may be referred to railroad boards of labor adjustment—local, regional, or national—voluntarily organized between the roads and their employees, or if such boards are not voluntarily formed, such disputes shall be decided by the Railroad Labor Board.

Like almost all hastily constructed and compromise measures the Transportation Act falls considerably short of being an entirely satisfactory solution of a difficult problem. Perhaps the best that can be said of it is that it is probably the best that could be expected out of Congress. It is not fair as yet to assume that it is a failure. But on the other hand how can it be to-day accounted a real success? It has not returned to the carriers its promised 6 per cent. upon their capital. Please notice that I say "promised," not "guaranteed." The last word is incorrectly used in too many instances. The Transportation Act endeavors to fix rates that will bring in $5\frac{1}{2}$ or 6 per cent. to the railroads; at no time does it *guarantee* them. And even this set figure of $5\frac{1}{2}$ to 6 per cent. expired March 1, 1922, two years after the enactment of the statute. Thereafter the adequacy of the return is left to the judgment of the Interstate Commerce Commission. Quite a difference from a 6 per cent. guarantee!

To-day railroad stocks lie virtually inert within the market. Gun-shy investors in Wall Street, and elsewhere too, will have nothing of them. They know the facts. Despite the

radical advances made in both passenger and freight-rates since the adoption of the much-heralded Transportation Act, earnings have not measurably increased. The slight net return earned in the last ten months of 1920—but 3.3 per cent., as against the expected 6 per cent.—was wiped out by the poor business of the first two months of 1921; with the result that the net result of the first twelvemonth of private operation was an actual slight deficit. As a year, 1921 was absolutely the worst in the history of American railroading. The total net return for the twelve months ending November 1, 1921, was less than 2.75 per cent.—considerably less than the promised 6, or even $5\frac{1}{2}$.

The situation to-day is hardly improved, despite desperate efforts on the part of the roads to reduce their operating expenses. What they have accomplished along these lines, aside from a further lowering of the reduced service that they are rendering these days, is shown in the fact that by June, 1921, they had brought their wages and transportation costs to eighty-two cents out of each dollar that they earn, and by October it was seventy-four cents. Less than a year before this was slightly over ninety-five cents. By the present time it is just above seventy. The roads themselves are now inclined to attribute much of their financial depression to two things; to the vast industrial slump with its obvious effect upon their revenues, and to their huge pay-rolls. Ingeniously they argued this last point before the Railroad Labor Board out at Chicago in the early summer of 1921 and succeeded in getting a cut of some \$500,000,000 in their huge annual wage-bill. But the average railroader of the rank and file still is paid considerably over 100 per cent. more than in 1913. (In exact figures his average pay to-day—on an eight-hour day basis—is \$1700 for the twelvemonth, as compared with \$761 nine years ago.) This is the figure, along with the figures representing his increased fuel and tax and material costs, that he uses when he justifies the increase of his carrying charges.

Yet the potent fact remains that the high rates are not only not attracting business but actually are driving it away. The long-haul use of the motor-truck, to which I shall refer in more detail in due time, is not due in these days of industrial depression to a lack of box-cars or to yard congestion, but is a protest against the existing rates. And that the railroads themselves are not deaf to these protests is shown by the fact that under the guise of "revising" their freight charges they are actually beginning to lower them. I am inclined to the belief that the partial failure at least of the Transportation Act must have taught all the wise men at Washington, and also a goodly number of our fairly wise railroaders, one distinct thing: You can lead a horse to water but you cannot make him drink. Which, being freely translated, means that you can raise railroad rates to a point where traffic begins to fade away, to find other pathways for itself, or to cease altogether. This is particularly true of passenger rates. A nation-wide rate of more than three and one-half cents a mile, with a heavy increase in the Pullman rates to keep pace, is not a particular inducement to travelers. Moreover the persistent refusal of our railroads to create a lower class of fares than the standard, with a slightly lowered quality of service, give the would-be traveler of modest means no alternative whatever, except possibly to ride in a small motor-car, or to stay at home. A good many of them are riding in motor-cars these days; and a good many more are staying at home. The passenger revenue of our railroads in 1921 was 23 per cent. less than in the preceding year. Which is commended to the attention of official Washington.

Consider now the railroads handed back on March 1, 1920, to their old-time owners—Fairfax Harrison returning from his temporary habitat at Richmond to his familiar offices in the Southern Railway building in the city of Washington, Mr. Rea, Mr. Willard, Mr. Underwood, and others who were temporarily deposed from power triumphantly returning to it. Triumph is the word. The Southern signalized its return

to its own by having its new time-tables, fashioned with their familiar yellow covers and with the odious words, "United States Railroad Administration," glaringly missing, ready upon that memorable first day of March. It did more. Upon its lines it terminated instantaneously the use of the Railroad's Administration passes which had been given rather freely to the henchmen of that branch of Federal service. Other roads quickly ended the life of those passes; but generally gave their holders time to get home with them. Not so with the Southern. For it the U. S. R. A. cardboards ended their value at midnight on February 29, 1920. After that they were good as souvenirs, and as nothing else. The unlucky wight who chanced to hold one, and no other pass, paid his fare from midnight on.

Personal feelings again came into play. One Federal manager of an Eastern railroad, who had had the audacity to move his former chief, the corporation's president, out of an office that the old man loved, lost his job for his temerity. He was not the only executive who lost his job. R. H. Aishton, who who had been president of the Chicago and Northwestern railway at the time of the creation of the United States Railroad Administration, and whose rare ability as an operating executive had been recognized by McAdoo in his appointment to the post of the regional director at Chicago, did not return to his old position. It is understood that he incurred the disfavor of Marvin Hughitt.

Mr. Hughitt is the last of the old guard of American railroad executives. He was born near Auburn, New York, in 1837, has lived in Illinois since 1854, and at eighty-five years of age is still the active controlling influence in the great Northwestern property. He has, to my knowledge, but one senior in the whole business, Chauncey M. Depew, chairman of the board of the New York Central railroad, who is eighty-nine years old; but Mr. Depew long since was very glad to relinquish the reins of operating detail of that great Vanderbilt property to younger and more energetic men.

Not so with Mr. Hughitt. His grip upon the Northwestern has been a firm one indeed. He has held his road to many old-time traditions. The lemon-yellow color of its passenger-coaches; the English fashion that it has of running its trains to the left upon double-track and not to the right, as is the ordinary American fashion; its generous, not to say profuse, local and suburban service—all of these are Hughitt. Since the death of the late Henry Clay Frick of Pittsburg and New York some years ago, there has been no one to oppose him. Frick could and frequently did. It is hard to conceive of any one successfully opposing Mr. Frick.

With Mr. Hughitt absolute dictator of Chicago and Northwestern there was none to oppose his arbitrary dictum in regard to Mr. Aishton. The fact that Aishton had been reared upon the property, that his record upon it was not only good but great, apparently counted for nothing. He was dropped. He had offended "the old man." That was a heinous offense for which there was no possible excuse. Aishton's powerful friends in the railroad world rallied to his defense. They elected him president of the American Railway Association at a salary reputed to be equal to that paid him by the Northwestern.

Apparently it is not only McAdoo who can afford to indulge his whim in personalities.

Before the Railroad Administration ceased its actual operation of the roads it began the restoration of much of the pre-war service, particularly of the passenger service. Soon after the signing of the Armistice and the removal of military pressure upon the carriers the important through trains that had been removed—the Broadway Limited and the Congressional chief among them—were returned to their former schedules, although not in every case with the same high degree of service as before. It was not, for instance, until the return of private control that the fastest trains between Chicago and the Pacific coast brought to their pre-war standard of approximately sixty-nine hours. The McAdoo administration as a

war measure had lengthened this schedule to seventy-two hours.

Yet it was McAdoo who, once the war emergency was passed, removed the half-cent-a-mile extra charge that he had established against people who rode in Pullmans or other forms of sleeping and parlor-cars and left the fare at a flat three cents a mile—where it should have been suffered to remain in the interest of the railroads themselves.

The Interstate Commerce Commission raised it to 3.6 cents a mile, upon hints from the private operators of the roads. It is but fair to add, however, that there are certain members of the commission who long ago had conceived the idea that the passenger-rates were not bearing their proper burden of the costs of railroad operation. It is these men who have to-day steeled their hearts against any lowering of passenger-rates to a point where the service might at least have some competitive attraction against that of the automobile, publicly or privately owned or operated. In all this discussion at the moment of the possible lowering of freight-rates nothing whatever is being breathed of a readjustment of passenger-fares, with the single exception of a recent bill passed in the United States Senate for the enactment of a Federal statute compelling the roads to sell mileage-books at a low wholesale rate. This neglect of itself is, I think, a most unhealthy sign. While the 23 per cent. lowering of passenger revenues in 1921 as against 1920 is a fairly definite expression of that unhealthiness.

To my mind this is not entirely a question of the proper equalization of operating costs to revenues; the question of setting the tariffs of charges to a point where business shall again be attracted to the railroads, to my way of thought, is the real kernel of the problem. That is the way that the average merchant or manufacturer would look at the similar problems that confront him. To get the business the rates must be made attractive. If it then becomes necessary to reduce operating costs so as to exist at the lowered revenues, then

the business man will move heaven and earth to reduce his costs.

Apparently the Interstate Commerce Commission does not see the question in this light. One understanding the complexion of its membership would hardly expect it so to see it. The commission is absolutely honest and, to a large extent, able; but it is generally dull. It has no traffic sense; no sense of salesmanship. It has no vision. It always looks backward, rarely forward. Being composed almost exclusively of lawyers,—long ago it was recognized apparently that it would be a fearful thing to place an honest, far-sighted, energetic railroad executive in its personnel,—it spends a great deal of time seeking for precedent. Therefore it hardly can be expected to look forward.

"What is the precedent?" it keeps asking. "How has it always been done in the past?"

This is one of the very great reasons why our railroads to-day are not marching forward in step with the progress of the other great businesses of America, why so often they are called, and with such a deadly truth, "the sick man of American business," why they have lost so much of public confidence and of public support, why the morale not only of the rank and file but of many of the executives as well has come to so low a pass.

The railroads of the United States to-day, deprived of so much of their initiative by the Government, should at least be able to look to that Government for some real qualities of inspiration and of leadership. Such qualities they need. Such qualities are not being given to them. The sick man needs medicine, physical and mental, not abuse. The Interstate Commerce Commission should be made into a doctor who can cure as most good doctors do cure these days, not by nostrums alone, but by good cheer and inspiration.

One or two things more, if you please, before we are done with this chapter.

The railroads generally wormed themselves out of the joint terminal arrangements which McAdoo had made for them, and made in almost every instance to the great comfort of the traveling public. The Southern Pacific expelled the offensive big Santa Fé and the almost equally offensive little Western Pacific from its ancient station and "mole" at Oakland opposite San Francisco. The Pennsylvania prepared to do the same thing with the Baltimore and Ohio and the Lehigh Valley at its station in New York. This last move was not carried out. I had something to do myself with preventing it.

The question arose in my mind at the termination of Federal operation: What will the Pennsylvania do with its chief competitor there in its fine station upon Manhattan Island? Will it do the obviously competitive thing and thrust the Baltimore and Ohio out, along with the Lehigh Valley into the bargain? A little questioning developed the fact that that was its precise plan. The question of rental charges did not enter into the situation. The Pennsylvania was not direct in its explanation; it did not say, as it might honestly have said: "We built this big, expensive station as a competitive move, and we do not purpose to share the fruits of our enterprise with a competitor who did not share the great risk of the undertaking." It merely said that there was not room in the station for the fourteen daily trains of the Baltimore and Ohio and the eight of the little Lehigh Valley. It was handling 175 of its own trains there, and about 275 of the Long Island in addition, but it could not find room for twenty-two other trains.

Here was railroad competition showing its most disagreeable side to the public weal. The man who lived at Martinsburg, West Virginia, or Cumberland, Maryland, or virtually any of the other non-competitive points of the Baltimore and Ohio was to be penalized henceforth in the name of competition. Having enjoyed great comfort and facility under the non-competitive plan of the United States Railroad Administration in the use of the Pennsylvania Station in the heart of Manhat-

tan, he was now to be shoved back into the old station at Communipaw, just below Jersey City, with its slow and cumbersome ferry connections across the Hudson River. It was not likely that he would henceforth become an enthusiast over the competitive system of railroading.

The whole thing seemed so absurd that I took it upon myself to mention it in the public prints. That apparently did the trick. Publicity oftentimes does. The Pennsylvania changed its position; in a big and graceful and generous way it waived what apparently were its obvious competitive rights in the situation, and invited both the Baltimore and Ohio and the Lehigh Valley to remain at least for some years to come in its great New York passenger terminal. The invitation was accepted with alacrity.

Most of the consolidated ticket-offices still remain, although there is a constant disposition among the more independent of our separate railroads to break away from them. Theoretically offering far better facilities to the traveler than the separate city offices, practically they rarely do this. For one thing, despite their brave show of mahogany and other fine forms of office fittings, they frequently are under-manned, particularly in seasons of heavy travel. And a man in a hurry going to one of them frequently is compelled to wait an outrageously long time. The fact also remains that the so-called weaker lines that use them seem so submerged as hardly to have a fair chance at the competitive traffic. A small railroad can make a large showing with an attractive office in the heart of a big city. Relatively it outshadows its neighbor.

Where the individual roads have remained in the consolidated offices up to the present time, it has been largely the result of a laudable desire to stand by their fellows. The Railroad Administration forced some one line in each large city to assume the rental of the consolidated offices. In Chicago, for instance, the ten-year lease (at \$65,000 a year) of the consolidated ticket-office fell upon the broad shoulders of the

Burlington. With the exception of the Northwestern system, which showed a particular antipathy to the late Railroad Administration, virtually all the large roads have remained with the Burlington.

There is moreover an economy argument in the consolidated office that is not without its appeal to the railroad executive. The only question in the mind of his traffic expert is whether the economy argument is not completely overcome by the additional business to be gained by a red-hot competitive little separate office. Of course if all the lines coming into any large city should maintain red-hot competitive little separate offices the gain would be theoretical rather than real. There might be some passenger traffic actually created by the brave showing of the separate offices, but I think that it would be negligible.

The convenient universally interchangeable mileage-book that McAdoo installed (with his name printed upon each third tiny coupon) has been retained with all of its universal privileges, up to the present time at least. But no longer with the name of McAdoo brightly displayed. It still represents no saving to the purchaser over the price of individual separate tickets, though offering a certain convenience in the checking of through baggage, in making Pullman reservations and the like. Yet the putting through of the Senate bill authorizing the Interstate Commerce Commission to reduce its price bids fair at last to lead toward a correction of this precise phase of the situation. Gradually a pretty well-defined feeling is being developed that railroad passenger-fares in the United States today are entirely too high. "Not more fares but more riders" is a slogan which a young man who is developing traffic for street railways is using, with telling results. His slogan is quite as applicable to the steam railroads. They apparently have brought their passenger-rates to a point where the riding, always a variable and uncertain quantity, no longer is attracted to their trains. And this is an hour when the motor-car is steadily gaining strength as a competitor of the railroad.

The flat abolition of the stop-over privilege which some enthusiastic railroad traffic expert urged upon McAdoo is now being slowly worn down again, at least to the point where most of the stop-over privileges that were in existence in pre-war days have now been restored. The traffic departments of our various railroads all the way across the land at last are beginning to unbend. The traveler is beginning to regain his old-time privileges.

We do progress.

CHAPTER V

THE PRESENT-DAY SITUATION

YET our progress is by no means rapid; it easily may be described in the one word "halting."

In the opening chapter of this book I directed attention to the ravages in the service of our national railroad structure that any man can readily find for himself. To discover, specifically, how the passenger train service across much of the land has been depleted he has but to turn over the pages of that ponderous tome, the "Official Guide of the Railways of the United States." The many, many trains of yesterday that are missing to-day even after the partial reparations to this important branch of the railroad's social obligation to the nation that the Railroad Administration made after the war crisis show the deletions that have been made. There too he might find how the speed of most of the trains that remain is slackened.

I have no argument to present for the excessively fast train in the United States; it is a risk and an extravagance that we can well afford to do without. One of the shrewdest moves that the New York Central and the Pennsylvania systems made was, some seven or eight years ago, when they lengthened the running time of their fastest New York-Chicago trains from eighteen to twenty hours. There is little doubt that the New York Central, at least, could operate a train between these two cities in sixteen hours or in a very few minutes in excess of that time by the use of the long straight tangents of its Michigan Central subsidiary across the southerly portions of Ontario and Michigan. But at what strain upon the men back

of the enormously efficient machine, at what great risk to life and property!

Despite the proverbial reputation of the American for great haste in everything, we have had but little desire in this country for extreme high-speed trains such as our friends overseas take such keen delight in boasting about. A few years ago the world was running riot on train speed. We had our two rival eighteen-hour expresses between New York and Chicago, to say nothing of the once famous Empire State doing the 440 miles between New York and Buffalo in exactly eight hours. It was that train which a short distance west of Rochester once reached the unofficial speed of $112\frac{1}{2}$ miles an hour, and held it for several minutes. There were a dozen mile-a-minute expresses between Camden, opposite Philadelphia, and Atlantic City, divided between the Pennsylvania and Reading systems. The latter road, in connection with the Central Railroad of New Jersey, ran fast expresses each hour of the day between Jersey City, Communipaw Station, and the Market Street terminal in Philadelphia, a distance of ninety miles, in an hour and fifty minutes. And the management of the New Haven was purposing to establish a four-hour train between New York and Boston—229 miles.

In those days our British cousins were maintaining our pace, or possibly going it a little better. Competing roads on each side of Great Britain all the way from London up to Aberdeen, its northernmost large city, were at each other's throats. The London and Northwestern and the Caledonian railways, working together, operated a train from London to Perth which on the greater part of its run was scheduled for actual operation at $49\frac{1}{2}$ miles an hour and which was given but two hours and five minutes for the $117\frac{3}{4}$ miles between Carlisle and Stirling. Finally the competition reached a point where these roads—the so-called "West Coast route"—had a regularly scheduled train from London to Aberdeen, 540 miles, in eight hours and thirty-two minutes. This was considerably better than the East Coast route—chiefly the Great Northern,

the Northeastern, and the North British railways—ever succeeded in doing. Their best regular schedule, even though their route was seventeen miles shorter, was eight hours and forty-two minutes.

The best regular trains on the crack Chicago and Alton, the shortest route between Chicago and St. Louis, take to-day seven hours and forty-five minutes to traverse the 284 miles intervening between those two important cities. It is 451 miles across level country from Chicago to Kansas City by the double-tracked Sante Fé—a distance ninety miles less than by the West Coast route from London to Aberdeen—yet the Santa Fé's best train between Chicago to Kansas City takes eleven hours and twenty-five minutes for the run. And even then it is not permitted to carry passengers; the best passenger time is five or ten minutes longer. I do not think that we Americans can be called speed crazy.

Great Britain also has now slowed her trains down. She progressed that way before the beginning of the war. A nasty accident or two close to the beginning of the century was responsible for the change; while the war itself, as in this country, slowed the fast train schedules to a vast extent. Now her service is back to its old general standard of reasonable (but no longer excessive) high speeds in almost every direction out of London. There are abundant service expresses running in an even four hours between that city and both Manchester, 184 miles, and Liverpool, 193 miles. Competition is supposed to have forced this service. Competition is forever supposed to be forcing service. Yet on the non-competitive Great Western railway I rode, but a few months ago, from London to Bath, 104 miles, in an even two hours, while across the Channel, I had ridden, but a few weeks before that, over the war-struck Eastern railway of France ninety miles from Paris to Rheims in just sixty seconds less than an even two hours.

We have slackened our running time appreciably in the United States these days; very wisely, I think, in the case of

the twenty-hour trains between New York and Chicago. As a matter of fact the Twentieth Century Limited, doing the 979 miles of the longer high-speed route between those two cities, from 2:45 o'clock one afternoon (Eastern time) to 9:45 o'clock the next morning (Central time), still makes a remarkable train performance. The Pennsylvania still has two or three of the mile-a-minute flyers in service between Camden and Atlantic City—59.7 miles in fifty-seven or fifty-eight minutes. The Reading has one or two of its flyers left, not only between those points, but between Philadelphia and Jersey City.

Yet this is about all of the mile-a-minute work. From here the slackening in time is appreciable until we come to the comparatively slow performances of the high-grades between Chicago and the cities that lie back of it. The New Haven no longer talks about a four-hour train from New York to Boston; it has lengthened its schedule between those cities. There also has been a slight lengthening of the one-time high-speed schedules between New York and Washington. There has been a let-down. The once proud Empire State Express now takes nine hours instead of eight to go from New York to Buffalo, while out upon the Pacific coast the tremendously high-speed expresses of the Santa Fé between San Francisco and Los Angeles, the Saint and the Angel, which we saw but a little time ago being summarily dropped by the McAdoo administration, have never been restored. They are not likely to be restored.

The Southern Pacific takes thirteen hours and one-half for its best express between San Francisco and Los Angeles, a run of 475 miles. But a moment ago we saw the West Coast system of England doing 540 miles in eight hours and thirty-two minutes, and keeping it up month in and month out. Similarly the S. P. takes twenty-nine hours and ten minutes for its best train between Portland and San Francisco, a distance of 773 miles. It is 517 miles from Paris to Marseilles; the best regular express train between those two cities makes the run in twelve hours and thirty-three minutes. It is 652 miles from

Paris to Nice; a regularly scheduled passenger train does it to-day in seventeen hours. And yet the French railway executives promise that they will do much better.

In these things we are not progressing. Take once again the worst of our national transport picture, the vexed New England situation. I have just referred to the slight lengthening of the time of the fast trains between New York and Boston, rather than any expected possible shortening of their schedules. The New York-Boston services of both the New Haven and the Boston and Albany roads are not typical, however, of the service that is being given New England these days; if it were there would be no large cause for complaint. It represents in fact the very top notch of the passenger service of the six most congested States in the Union, the very States which by all right and sense should to-day be enjoying the best passenger service, not the worst.

We have seen already the deplorable state into which the suburban service in and out of Boston has long since fallen. Boston is not all of New England, even though some Bostonians may so believe. Take the case of the Fitchburg. The Fitchburg started off as a railroad with good prospects. For it was bored the spectacular Hoosac tunnel ($4\frac{3}{4}$ miles in length), upon the completion of which the Fitchburg became the short-line between Boston and both Troy and Albany. The lordly Boston and Albany meanders magnificently through the high hills of the Berkshires, and takes much longer for the process.

Unfortunately the little Fitchburg road never had much of a chance for its money. The close traffic alliances between the Boston and Albany and the New York Central, which preceded the actual leasing of the one road by the other, gave it little or no chance for through freight between New England and the West. Its short mileage and well-built line availed it nothing. Eventually it fell into the hand of the Boston and Maine and became, in large part at least, a local line, taking from the New York Central and the Delaware and Hudson

such freight as the Boston and Albany would not or could not take. Yet for years it kept up a brave show. It ran between Boston and Buffalo and Chicago and Detroit and St. Louis sleeping-cars a-plenty. It had an excellent dining-car service too.

The dining-cars are gone from the Fitchburg these days. It has become indeed a very secondary stem of the Boston and Maine. Two parlor-cars ply their way daily on slow trains between Boston and Troy; recently a Boston-Buffalo sleeper was added to the service. The road has lost not only its name but its personality and its service too.

What is true of the Fitchburg is equally true of the erstwhile Housatonic. Equally true also is the fact that twenty-five years ago the best train between Pittsfield and New York made the run in an hour's time less than the best train on that line consumes to-day. There were more trains too, just as there were more trains then on the New Haven and Northampton line, the Connecticut River, the New England, the Boston and Providence, and a dozen other little individual roads that long since lost their name, their prestige, their individuality, and, what is far more important, their intimate personal touch with their patrons and their employees.

The main line express trains of the New Haven between Boston and New York, either by the way of Springfield or by Providence, have not lost their excellence to-day, neither have the main line express trains of the Boston and Albany nor the Boston and Maine's trains to Portland and points far beyond, although there are none too many of them and they are none too generous in their accommodations. It is in the branch line trains, just as in the branch line stations, that the New England passenger service has not progressed but has distinctly retrograded.

Descend beneath the obvious. Ignore even the sickening decline in railroad dividends, whether average or cumulative—the records of Wall Street will give you all that you want of these—and come to the deterioration of the roads as shown

in hard and unsentimental figures. The condition of the locomotives and cars of almost all of our railroads had begun to decline seriously even before the days of the Railroad Administration. When that supreme governmental organization came into being it pledged itself to return to the carriers their properties at least as well and as fully equipped as upon the day it took them over. It did not quite succeed in doing this. The extent to which it failed, by the statistics referring to freight-cars alone, was as follows: In 1917, the year of private railroad operation immediately preceding those of government control, our national transport structure had 2,479,472 freight-cars, which was much less than it should have had. The roads had failed to build enough equipment to keep pace with the overwhelming increase of traffic, which almost at the very beginning of the World War had been thrust upon them. Under almost all circumstances they found it necessary to "scrap" or otherwise remove from service approximately 100,000 worn-out cars each year. For several years before 1914 their construction of new cars had barely more than kept pace with this annual loss.

Yet under governmental operation things went from bad to worse; despite its orders for 100,000 box-cars the Railroad Administration did not buy enough cars to keep pace with those that were being scrapped. In 1918 the total freight-car equipment of our carriers had declined to 2,397,943, in 1919 to 2,361,102, in 1920 to 2,352, 911—in other words a total decline since 1917 of 125,561—while the normal increase of our transport plant called for an increase of at least twice this number of cars and certainly admitted no decrease whatever.

In this connection, I think that it is at least worth a paragraph in passing to notice that in the seven years ending with 1913 our railroads increased their freight traffic 39 per cent. In those same years they added 315,000 freight-cars and 8,100 freight locomotives to their existing equipment. In the seven years that ended with 1920 the traffic increased again—virtually in the same ratio, 38 per cent.—but only 143,000 freight-

cars and 4200 freight-locomotives were added to the total rolling-stock. In 1921 but 20,000 new freight-cars were purchased and but 250 locomotives of all types. It is no wonder that many of our railroaders now view with real apprehension any return of heavy traffic.

Moreover not only the number but the condition of the individual cars has declined. A small Eastern city which I know very well indeed is a brisk point in interchange freight. It is also a water port of fair importance, to which a large number of coal-cars come in the average summer and autumn. Last autumn I noticed that many of these cars were in a pathetic state of disrepair. The yardmaster explained it to me.

"The first time they come through from the mines," he said, "they will have their hoppers braced with a bit of timber so as to keep all the coal from spilling out upon the tracks before they even reach here. Somehow that timber will get lost before the car gets back to the mines again. The mine-bosses will put in a flooring this time. Fine business, that! The hoppers won't work at all then, and thirty tons of coal have to be shoveled out by hand—at the present price of labor!"

Think of this single all-too-typical instance many times multiplied; combine this fact with that of the great decrease of freight-cars of any sort upon our rails to-day and you begin to get the measure of the true condition of our sick man of American business. To-day approximately 354,000 of the freight-cars of the United States are reported as being in bad order. And while a "bad-order" car may be, and frequently is, used for some forms of rail traffic (as for instance a leaky grain-car utilized for the shipment of automobiles) the fact remains that nearly 15 per cent. of our total freight-car equipment stands in great need of large repairs or of replacement, while 19 per cent. of our locomotives are so far gone that they have been thrust upon the sidings virtually abandoned. In another chapter we shall see how these locomotives might be rejuvenated and put to work again, more efficient

than ever before. For this one however consider them nil and valueless to the American railroad.

It was partly to remedy conditions such as these as well as to provide for the return of the roads to private operation that the Transportation Act was passed. For there is not only a great rolling-stock shortage but virtually little or no extension of our railroad structure. As recently as in the decade from 1901 to 1911, 52,000 miles of brand-new line—a larger route mileage than that of almost any other nation in the world—were laid down. Since 1911 there have been virtually no new railroads in the United States. The comparatively small San Diego and Arizona railroad was completed but a year ago, but this was more than offset by the abandonment and removal of such lines as the Buffalo and Susquehanna and the Colorado Midland, to take two instances out of several. In 1920 only 314 miles of new railroad line were built in the United States, while 536 miles were abandoned. In 1921 service was discontinued on 1626 more miles of railroad. For six years past our total rail mileage has been going backwards, not rapidly but steadily and perceptibly; the small amount being constructed each year is being rapidly overbalanced by that which is being torn up. Our sick man of American business is a very sick man indeed.

Up to a decade ago our railroads were still busy increasing and enlarging their terminals, double-tracking their single-track lines, and three-tracking and four-tracking their double-track ones. The Union Pacific was achieving the distinction of being the first long-distance double-track line in the great West; in the East the Erie, the Lackawanna, and the Baltimore and Ohio were completing their remarkable series of cut-offs. All this has ceased, even though the necessity for its continuation has not ceased. For if the country does not absolutely stand in need of new trunk-lines to-day there still is a vast and unanswered demand for feeder branches in many, many corners of it, for duplication of tracks upon existing and badly overcrowded single-track and double-track lines. New York,

Buffalo, Cleveland, Cincinnati, Pittsburg—other important cities as well—fairly cry aloud for a revision and extension of their terminal facilities, and cry in vain.

Rates have been increased, comparatively recently, to a point, as we have seen, not only higher than the most imaginative of our rail traffic experts might have dreamed five years ago but, as I have remarked already, to one where the traffic instead of being attracted to our carriers is actually being driven away from them; and some of the wiser executives have come to the point of asking the Interstate Commerce Commission for a modification of rates. From a niggardly policy of former years toward the railroads in regard to rates, this body, in professed obedience to the Transportation Act, raised them to the prohibitive point. Now it is beginning to see the error of its ways and, as we have seen at the behest of actual railroaders, is lowering certain of the freight charges, although not in any general or particularly scientific fashion. Recently the commission responded to a large public pressure by permitting the roads to reduce their freight rates on farm products 10 per cent. for a test period of six months, with the possibility that further freight rate reductions will be made.

And finally, as we all know, wages are now being reduced. Already they have been brought down half a billion dollars a year, and in all likelihood they will be even further lowered. As to the justice or wisdom of all this we shall talk presently. The fact remains here and now that a generous step has been taken in bringing down the greatest single item of the cost of conducting railroad transportation, while some of the other costs, chiefly materials, to-day are being reduced automatically by the steady fall in market quotations of supplies of every sort. The situation slowly but surely is working itself through.

On the other hand, what does the public demand in this railroad situation? What is the opinion of the Man on the Station

Platform? Surely he has a voice in the matter. He rides on the train, if not daily as a commuter, then perhaps as often as every week or every fortnight. He talks. He observes. He forms conclusions. And some of these last might be accepted as fairly indicative of his needs as a constant patron of the railroad in both its freight and its passenger services.

The Man on the Station Platform believes first and foremost that transportation in this country, as well as in all others, is not merely railroads or motor-trucks or canal barges—not even *aëroplanes*, if you please—but a scientific correlation of all of these agents of transport. He believes that each must have its own field in which it reigns supreme because in that field it is the cheapest and the most efficient form of transport. And therefore in that field should be recognized as supreme and so developed.

I share these beliefs of my friend who stands on the shady platform awaiting his up-local. I cannot see these agencies in the long run and in the fullest understanding as competitors but as correlators, if such a word may safely be coined. Each should supplement the other. In the full understanding of modern business competition has little real value; in the conduct of public utilities it has none whatsoever. We learned long ago that in gas-works or in water-works, in telephone service, even in the traction facilities of our largest metropolitan cities, it was no lasting help in the long run but merely an added expense burden upon the community, and so should be eliminated or at least brought down to its lowest possible level.

Here then is perhaps the greatest of the burdens that the man outside of the railroad can wish to see removed from it. There are others: the neglect of the fine intensive salesmanship of transportation, which should have been brought to the fore years and years ago; the opportunity for the development of electric traction, of the container system of handling goods, which oddly enough brings us back again to the correlation of the several agents of American transport and the elimination of our absurd competitive plan.

All of these things will have had our attention before I am done. The question is one that demands a great deal of attention. The condition of our rails, instead of growing stronger each day, daily grows more precarious. It is obvious that this condition cannot long continue—the service greatly reduced and impaired, the men sullen and oftentimes working at direct cross-purposes to the management, the rates raised to the point where traffic begins to refuse to come to the stations, the financial condition so depressed that railroad securities will not sell under the absurdly uneconomic prevailing conditions, no thought whatsoever being given to the morrow.

Out of this miserable mass we must raise a program, definite and distinct and statesmanlike, as sound as the program under which we changed our money situation from periodic chaos to vast and proved stability. It must be a program of progress, not a continuation of the absurd artifice of competition years after every other business has found that its economic strength comes in correlation and not in competition, but a genuine progress—progress in the physical fiber of our railroad structure, using the electric motor, the gasolene motor, the industrial terminal, the package container, a dozen other steps as well; progress in the really fine science of selling transportation; progress in human relationship. In such progress there is nothing chimerical, nothing even remotely approaching the fantastic. And in such progress, and nowhere else, can one hope to find a solution of our railroad problem of to-day that even approaches permanency.

CHAPTER VI

THE MAN FACTOR OF THE PROBLEM

PROGRESS in human relationship may be, I think, safely permitted at least the consideration of priority in any understanding of our surpassing railroad problem. For it may also be set down as fairly axiomatic that unless we progress in this phase of transport we cannot expect to go ahead in any other department of it. In its tense importance to the larger question this very human problem can be regarded as foundation-like. Upon it the railroad structure may yet build. Without it, it certainly must fall.

For more than two decades past, imagination, virility, foresight have been upon the wane in our railroads of the United States until to-day with these qualities quite gone upon many of them, the debacle of our national transport machine becomes a doubly depressing picture. The man with an idea may be needed upon our carriers but, as we shall see gradually, he is not often wanted there. They are ruled by conservatism; conservatism carried to the last degree. Yet only yesterday the man with an idea was at a premium in our railroading; our roads themselves were known for their daring, their strength, their progress. To-day too many of the men who operate them are the abject slaves of a system; the only ideas that they safely may advance are those leading to immediate economies. Immediate expenses, even with great and far-reaching economies as their ultimate result, are quite taboo. The railroader no longer may think. Apparently he may only execute.

What is the reason for this—for the human debacle of our carriers following so closely upon the physical, and in many cases responsible for it? Has the American railroader lost

his ability to think and to act upon original lines? Has he sunk, with the débris of much of his once proud transport system, almost to the limits of degradation?

A hundred answers will be made to these questions. Some of them will come from banking interests—shrewd men, in banking. These will bear upon the degree of regulation to which our rail carriers are subjected to-day.

“These government sharks have killed railroad initiative,” it will be said time and time again. There is some truth in that answer, yet I think myself there is greater truth in the statement that absentee ownership of the carriers—if I may be permitted to speak frankly, long-distance banker control—has done far more than regulation, either State or Federal, to kill initiative and progress in our transport machine. Wall Street is likely to think too exclusively in terms of dividends; Wall Street does not think enough in terms of men.

People in Wall Street, and a good many others outside of that famous thoroughfare as well, think of the difficulties of our railroad problem as things merely of dollars and cents. They feel that the questions of rates and wages, of income and outgo, are the sole factors to decide the future weal or woe of the railroads. If the rates are put high enough and the wages and other items of expenditure are kept low enough the roads will prosper again. These people feel that the problem is solely an economic one.

I believe that they are wrong. Granted that dollars and cents *do* enter largely into the problem and its solution, that unless our national system of railroads becomes a real “going concern” it can hope for no continued success, I still feel that the prime point of the entire question is contained in three words, the human factor. This factor comes first, not last. That Wall Street and other cocksure people have in the past placed it behind the problem of finance, is one of the very large reasons why our American railroads are having such extremely hard sledding at the present moment.

The human problem of the railroad may be fairly said to be divided into two classes, that of the patron and that of the employee. Before I am done the necessities of the first of these classes will have had attention; for the moment those of the second claim our full interest. There is always that meaningful phrase, "the fine tradition of our American railroading," that we are using again and again because it stands for something very definite, the thing which was largely responsible for the first upgrowth and strength of our railroads and whose loss within recent years has been chiefly responsible for their downfall. It was that tradition, that old-fashioned affection for railroading and loyalty to it, that made men work, not eight hours, but ten or twelve at a single stretch, and under the stress of a great emergency, such as a flood or a blizzard, sometimes sixteen or twenty-four or even forty-eight hours at a stretch. To-day they will not do this.

Why?

It is not a story quickly told. To understand why the railroader of to-day will not work long hours, even in reasonable emergencies, save under the spur of fearfully high overtime pay, why he goes about with indifference in his manner and a lurking grudge in his heart, one must dive beneath the surface of the situation. There he may find the solution of the loss of our railroad tradition.

The beginnings of that tradition are in the beginnings of the American railroad itself. They root back to the days when the overland carriers were in that same flash stage of development that in our day we have seen come to the motor-car and the motor-truck—the days when romance rode the steel highway, when it was thrusting its stout tendrils here and there and everywhere, when earnings and enterprise and initiative were all alike unlimited, when, in a word, the railroad called in an all but irresistible way to the rich man's son and the poor man's too, when the banker's clerk a president would be and the farmer's boy had as his supreme ambition the driving of a fast passenger-locomotive.

What has become of that farmer's boy who used to stand in a field for a single idle moment to watch the fast express go sweeping by and dream wistfully of future possibilities, or who stood for a fascinated minute beside the iron horse as it paused at the country depot, studying the intricacies of thrust and gear and bearing? Alas, he no longer covets railroading. It has ceased to enthrall or even interest him, despite the fact that the swing of the pendulum is to-day all in favor of the rank and file of men who work with their hands upon the railroad. Yesterday, in those same golden days of which I have just spoken, the swing was at the other end of the arc. The railroad employee was down; his employer was up. Two years ago this giant pendulum had completed its course. The employer was down, the employee up; and something approaching a social revolution in our railroading had been accomplished.

The railroad employee—succinctly the two million and a half of the rank and file of railroad workers—had become a political asset. Two million and a half direct votes are a bait that few shrewd politicians can ignore. That it was not ignored has in recent years been shown repeatedly, in the passage, by this State legislature and that, of various protective statutes for the railroaders, some of them good and some of them absurd; in the thrusting through Congress of the Adamson Eight-Hour Law; and in the extreme deference shown by the first Federal director-general of railroads to the big brotherhoods and other unions of transport employees, with the final result that those groups of railroad labor which had remained unorganized up to the period of Federal control proceeded to organize themselves. The stake was too good.

Incidentally it may be stated that in past years the average railroad executive was himself the largest single force toward the propagation of trade-unionism within his industry. While decrying its steady growth he placed a premium upon its advantages. Let me explain. A few years ago, say ten or fifteen, at the most, there were but four important unions of

railroad employees—the four great brotherhoods of train workers: engineers, firemen, conductors, and trainmen. These were and still are high-grade organizations, extremely independent, refusing for many years even to affiliate with the American Federation of Labor. The men who conducted them were high-grade men of great principle and considerable vision. They fought for the rights of their fellows and fought well, with the result that there were few times when train employees were not adequately paid.

At that time the rest of railroad labor, with the very few exceptions, had no national organization; its individual loyalty was given instead to the properties for which it worked. With what result? Here is one glowing instance.

Conductors, then and now, belonged almost without exception to their strong trade organization, the Brotherhood of Railroad Conductors. It took good care of its own. A conductor on a fairly good run might easily earn from \$175 to \$200 a month, even in those prosaic days of butter at twenty-five cents a pound. It was a good pay, yet one could hardly say that the average conductor was overpaid. For he was far more than a mere train employee, particularly if he had a passenger run. He was a great point of personal contact between a railroad and its patrons. Upon his tact and diplomacy and understanding, or lack of these qualities, his road might rise or fall. True at all times, this was intensified in hotly competitive territory. A good conductor might easily bring or hold patrons for his road, a poor one drive them away to the other line.

Yet I think you will agree with me that at least an equal point of contact between the railroad and its patron is the man with whom he comes in contact before he boards the train—the station-agent. *His* tact and diplomacy and understanding have a good deal to do with attracting patronage to the road. Yet it was not more than a decade ago that I found in a certain small brisk Eastern city of some twenty-five thousand people the chief representative of an important railroad working

seven days a week, twelve or fourteen hours a day, and paid \$85 a month. He knew what the conductors who ran the trains past his station were receiving and it rankled.

This was not an unusual case, this high-grade man, working long hours in his office at the passenger station and between trains scurrying out through the town to sell tickets to possible travelers over his line—it was in a genuinely competitive territory. It was all too typical. More than one railroad in past years paid its dividends out of the exploitation of its labor, and to-day is reaping the benefit of its short-sightedness. One can imagine the ease with which the former United States Railroad Administration was able to help bring about a strong union organization of railroad station-agents and employees!

Mr. McAdoo was not asleep to the possibilities of this situation. We already have seen how from the outset he extended to labor a place in his cabinet and placed the entire vexed wage situation in the hands of a special commission headed by the late Franklin K. Lane. Now in all fairness and in simple justice to the Railroad Administration it should be set down that no matter what its motive it did seek to place railroad labor on a more scientific and more human basis with relation to its employer than any private corporation had ever succeeded in giving it. It tried to place the railroad wage on a basis more directly in accord with living costs, and less with mere supply and demand. Similarly it endeavored to better the working conditions of the rank and file of the railroaders. That in some of these last cases, particularly those of certain of the so-called national agreements, eventually it went entirely too far, is not to be denied. That is now proved by the willingness of the new Federal tribunal, the Railroad Labor Board out at Chicago, to abrogate these agreements as soon as the individual carriers shall have succeeded in making new ones with their workers.

This last, however, seems to be much easier planned than actually accomplished. Months are slipping by and some of the outrageous and expensive agreements still stand, along with

some others which are neither outrageous nor expensive. The very worst of the lot, the meticulous arrangements under which a small job on a locomotive headlight (to make a single possible but rather typical instance) required six or eight men because each was a specialist and no man could infringe upon another's specialty, are going now and going rather rapidly. There is an apocryphal story around one Eastern railroad town to the effect that the changing of an air-hose connection on a Pullman sleeping-car one day more than a year ago cost the railroad forty dollars—a small job which two ordinary capable mechanics would have been glad to perform for but two or three at the most. Instances such as these have been multiplied. A farmer's boy who lived close to a railroad in the Middle West and who received five dollars a month and an occasional trip-pass to Chicago and back for oiling and watching an automatic electric pump at an obscure siding saw himself rated as an electrician and in receipt of \$185 a month (standardized wage) without having lifted one finger toward the bonanza. It was heyday for the rank and file. The Lane Commission, which really did much scientific work on this wage question despite the exceedingly great time pressure and the war crisis under which it worked, started the ball rolling, yet in what seemingly was a very fair and reasonable fashion. It was after that, even after Mr. McAdoo's actual term of office as director-general, that the real damage was done. The pendulum swung then, and swung far. From a point where the wage-scale was unfair to the railroad employee it came toward a point where it was unfair to the railroad investor.

This was particularly true in the case of the shop-craft men. They seem to have been the real offenders in the situation. With the position of the men in the train service, the members of the brotherhoods, I can have little else than great sympathy. Their plight at this moment is deplorable. At the best, they catch the hard end of railroading, the long, unconscionable hours, the stress of bad weather, the nights away

from home, all the other difficult conditions of life upon the road. I do not believe that there have been many times when these men have been seriously overpaid. The score is far more apt to lie upon the other side of the table.

True it is that even in these branches of railroad service the unreasoning form of national agreement has crept in. I can remember not so many years ago up in northern New York when if a switch-crew was sent down to one of the paper-mills to get a box-car it was paid two hours' pay for two hours' work. That was fair pay—and it was not. A switch-crew even in dull times could hardly exist on the prospect of getting no more than two hours' pay out of twenty-four. Gradually the pay for such a job—any job at all—was set at a minimum of half a day. That seemed fair. A little later this minimum, no matter how small the job, was set at a full day's pay. Even that might have been fair were it never abused. Let me illustrate.

Here is a yard-crew kicking around in Watertown yard. The first thing that happens in a brisk day is that an engine derails somewhere south of the junction. It is not a serious mishap, and the yard-crew, acting as a wrecker, cleans it up in ninety minutes or thereabouts and gets a full day's pay. An hour later that same crew has to take a box-car two miles down the Cape Branch to a paper-mill, another ninety minutes perhaps, and another full day's pay for every man Jack of the crew. They sit around for three hours in the yardmaster's cabin and settle all the affairs of the New York Central railroad. In two or three more hours a careless switcher sends two flat-cars off the end of the siding up at Sewall's Island. Our little crew is again a wrecker. It goes up to the Island, puts the derailed cars on the track again,—another ninety minutes of actual work,—and draws a third full day's pay. Three days' pay in eight or nine hours is not bad. I should like to be able myself to turn the trick.

This is an exceptional case, of course—and it is not. Some strange things are possible in the national agreements which

were foisted upon the Railroad Administration during the control of Walker D. Hines. I do not believe that Hines himself ever realized how strange they might become—his own large railroad experience would have guarded him against them.

When the versatile Henry Ford embarked not so many months ago on the difficult and time-honored business of running a railroad he was not greeted with any warm-hearted reception dinner by the American Railway Association. He probably was not even asked to join the association. Its members had heard of Mr. Ford as a shatterer of traditions. And traditions, as you already know, to the heart of the old-time railroader are like unto the ten commandments themselves. I have no brief for Mr. Ford, any more than for Mr. McAdoo. He is not an economist, although he would like to think himself one. He is a mechanic, a super-mechanic if you please. And he has a glorious knowledge of men, their strength and their weaknesses. Yet this is not criticism. These last qualities are much needed in our American railroad situation to-day. By this time there is almost a superfluity of economists in it.

Mr. Ford at the outset sought to solve the railroad labor question by straddling it—by tearing up all the cumbersome and complicated standardized national agreements between the men of the small railroad that he now owns and substituting for them a generous minimum wage and the right of the road to utilize a man at whatever work it pleases, within his established eight hours of labor. On Mr. Ford's railroad an employee may possibly drive a locomotive for ninety minutes and then spend five hours and a half washing car windows, or trucking cases upon a freight-house platform. And the astonishing thing is that in this one instance at least the plan apparently is working.

It may be that Mr. Ford has reached the solution of the problem. I am not at all sure that he has not. But I feel that if he has, a large number of railroad executives and sub-

executives will forget their annoyances at the Detroit gentleman's publicity methods in connection with his personal railroad and begin to call him blessed. They have had little good fortune as yet in handling the standardized national agreements with their men, which were their unwilling inheritance from Uncle Sam, railroader sublime. The agreements still stand despite the professed entire willingness of the Railroad Labor Board to abrogate them, for the simple reason that no acceptable substitute for them has yet been brought forward. The Labor Board has made some rather sweeping rulings in cutting down overtime payments and the like, however—all to the cost of the rank and file of the railroaders. Their position steadily becomes less and less enviable.

In October last they took the 12 per cent. cut in their wages—roughly speaking, half a billion dollars. They did not want to take that; the hot-heads in the organization talked "strike" and a national tie-up of our rail transport machine. If it could have been achieved it would have been a real national calamity. As it was, the country had a very bad state of nerves over the mere possibility of the thing. The strike was an impossibility. Many of the railroad executives in their hearts wanted it. With labor conditions as they were across the country, with the unwillingness (to put it mildly) of the average man to have his comfort and necessities interfered with no matter how much right or justice might be involved in the situation, the executives held all the cards. The leaders of the men knew that. Therefore there was no strike. Strikes are rarely popular when times are dull.

Perhaps it is knowing this that a certain group of railroad executives—there is no great unanimity in the matter—is steadily pressing toward a further wage reduction of another 10 per cent. I shall refrain from comment upon the wisdom or unwisdom of such a further step at this time. That the very executives who are urging it are, I think, none too sure of their position is indicated by the fact that they are coupling the proposed reduction with vague suggestions that if it is granted

they will reduce their freight-rates, at least, correspondingly. The idea of reducing rates to build up traffic apparently does not even come into the reckoning.

Would you understand this situation better? Then come back with me for a moment to those humming summer days of 1920 when the railroads of the United States were still in record-breaking traffic. It is June, 1920; a sluggish hot evening in the city of Chicago. Eight railroad engineers, members in good standing of their brotherhood, are set upon by a gang of organized thugs—in the picturesque phraseology of the railroaders, a “wrecking crew”—in the shadows of the great Northwestern Terminal, and so badly beaten up that they have to be sent to the nearest hospitals for treatment. Yet the Chicago newspapers of the very next morning announced with a sort of smug optimism that “satisfactory progress” was being made with the switchmen’s strike. They predicted an early break-up of the entire “outlaw” walk-out (which had been in progress since the preceding April), and apparently without a definite knowledge that each ensuing twenty-four hours were seeing the whole outrageous business gain in its vicious strength.

Up to that time we had had almost every thing difficult and disagreeable in our railroad debacle except physical violence. It then seemed to have embarked upon this final phase of badly disordered industrialism. The Chicago imbroglio was not particularly exceptional. Brotherhood men all over the country, members of the most powerful unions that this land has ever known, literally went to their work nightly in fear and in trembling. In few of our big cities is police protection to-day at its highest point of efficiency—for a variety of reasons, which need no particular explanation here and now. This means, in turn, that rowdyism and thugism are at high-water marks. When these are organized by brains and financed with plenty of real money they seem to go all unchecked. And loyal railroaders of every sort suffer the penalty, in the

first instance at least, with the dear old public as usual in the rôle of the greatest sufferer and the final judge.

Outrageous as it really was, the outlaw strike was one of the most human that this country has ever seen. It came as the logical result of official stupidity and procrastination. In January, 1919, the various groups of railroad employees, appalled, as was every other form of worker, by not only the steady but the extremely rapid increase in living costs, made applications for wage raises beyond those that the labor commission originally had granted—the so-called billion-dollar increase. So did other forms of labor ask for wage raises—and got them. The applications of the railroad workers remained under consideration after eighteen months. The Railroad Administration, even though it continued in full control of our carriers for fourteen months after the wage applications had been filed, passed the buck—and permitted the national agreements. That was politics. The recently created Railroad Labor Board sitting out at Chicago was going over all the testimony again, making solemn and voluminous proceedings of a business that might be decided, tentatively at least, in a week of real work. That was politics again.

In the meantime, in those slowly moving eighteen months, what came to pass? In San Francisco, in Portland, in Seattle, in half a dozen other west coast cities where the wages of unskilled labor had reached an abnormally high figure, the railroad switching-crews had the exquisite pleasure of shunting cars at \$4.50 for an eight-hour day into shipyards and other industries where the commonest and most unskilled forms of labor were receiving six and seven and eight dollars a day for the same amount of labor. I do not maintain that shifting box-cars is a particularly expert form of labor. Yet at the least it is a fairly hazardous one. The actuaries of the insurance companies will assure you as to that. And it is a fairly responsible one too. The claim agents of the railroads themselves will bear full witness as to that. They know to their own great sorrow that a box-car filled with breakables cannot

be batted back and forth like a gondola of coal or a flat filled with steel angle-iron.

"Responsible, did you say?" snorted the brotherhood engineer of a switcher to me one day, a year or two ago out in the Mid-West. He shouted across his cab as he poked into a siding and pulled out one of John Ringling's long circus trains. "You'd think it was responsible if you'd see the amount of signing off I have to do for this trick before I can cart her out of the roundhouse. They're right too. She may be eleven years old—you can see by the maker's plate there over the steam-chest—but she's still worth a good fifteen thousand dollars in the open market to-day. And I'm responsible for her. For five dollars. While the fat-heads that are up on the main streets of this town manicuring the cobblestones for the city fathers are getting six dollars—and no responsibility whatsoever."

Here are two of the reasons why I have just called the walk-out of the railroad switchmen one of the simplest and the most logical of all the strikes in the country. The eighteen months of inexcusable procrastination in coming to a decision in this railroad wage matter was a third and a far greater one.

Yet remember that the switchmen were not the only aggrieved parties to this situation—this seemingly impossible situation that has quickly become an actuality. Other forms of railroad labor suffered quite as much if not more from official procrastination and official indifference. A passenger trainman rode with me a year or two ago across northern Idaho.

"Don't you go putting any pieces in your paper," said he, "saying that all of the train-crews are making the big money. A few are. But they are mighty few."

He swung quickly to his own case. He was on his run, across three States from Spokane, Washington, to Paradise, Montana, seven days a week, 365 days out of the year. For this he was pulling down \$150 a month—\$120 for his straight time and the other \$30 as overtime. Around him in Spokane

carpenters were getting \$1.25 an hour and plumbers \$1.50—and working five and one half days a week or, at the most six. They all owned cars, and Saturday afternoons and Sundays they went fishing. The brakeman had not been fishing in more than two years. He told me so and I believed him. If you interview enough men in the course of a twelvemonth you will come quite quickly to know the kind that you can believe. It is written in their faces.

“Seven days a week and with two gardens, one at each end of the run; and I make out—nothing more,” he continued. “Last night my wife and I went down to the market and we bought pork-chops. There were six of them—none too many for the three mouths to be fed at home—and the measly things cost me sixty cents, at the rate of forty-five cents a pound. We allow ourselves meat three times a week, not oftener.”

Somehow even though it might have the fervent approval of some of our really high-brow hygienists, I do not like that idea of an American workingman being able to have meat but three times a week. It does n't seem quite American. It does n't seem quite fair. I do not believe that the average executive, or even the average stockholder of the American railroad, wants such a condition. He assuredly would not want it for any member of his household, or for himself. If he did want such a condition, I should like then to contrast his attitude with a British one that came to me not long ago.

“We of Great Britain feel that every British workman is entitled first to a minimum wage that will insure him decent conditions of living—housing, food, clothing, education for his children, insurance against death and old age—and to a maximum wage that will include these things plus a little share in the profits of the railway business. Otherwise we can never be sure of the coming generation. And a decent coming generation is our one national assurance of continued national strength and security.”

So spake the general manager of a British railway to me one day last year. He sounded a real truth. In their prosperous

days our American railroads were decidedly loath to share their profits; some of their more captious critics were not slow to say that they had capitalized their underpaid helpers and were paying dividends on the remainder. A few roads, notably the prosperous Santa Fé and the Southern Pacific, in the golden days before the war had made a beginning toward bonus and profit-sharing systems but these were in the vast minority. I should like to see those extremely prosperous railroads, the Burlington and the Lackawanna, resurrect the experiment. It should not be left to Henry Ford to accomplish all the railroad experimentation in this country.

Offhand the job of a passenger trainman, such as my friend up on the Northern Pacific, may not seem to be a particularly strenuous one even though it is long-houred. Here is a harder one. On a test running across Wyoming not long ago the husky boy with the shovel in the engine-cab tossed six thousand pounds of coal an hour from the tender into the fire-box. The run was six hours long. If you do not even yet get the measure of his job, go down into your cellar, find that there are eighteen tons of coal there and then shovel it from one side of the cellar to the other—in six hours. Repeat the entire process three or four times in the course of a week and then write and tell me which you had rather fire on—a coal-burner without a mechanical stoker, an oil-burner, or one of those big electric locomotives up on the Chicago, Milwaukee, and St. Paul, where the fireman's chief job is to keep awake against the lazy droning of the motors to be prepared in the always-possible emergency that he may have to take control of the craft.

Here is a final instance or two of what I mean.

From one point in California to another 170 miles distant is a typical operating division of one of the biggest roads in our Southwest—a little longer than typical Eastern operating divisions in fact. It is provided that freights moving from the one to the other shall do so at the average rate of twelve and one-half miles an hour; which means thirteen hours and

thirty-six minutes for the division. That therefore becomes its official running-time. Anything beyond that fairly good lapse of continuous labor was paid for as overtime "pro-rata." In other words, the train-crew was paid the same figure for its sixteenth hour of continuous service as for its first one, and the incentive for the railroad to cut down its overtime is gone. That is why the rank and file of railroaders were fighting so strenuously three years ago to gain time-and-one-half pay for their overtime, beyond a basic eight-hour day. It is the only way that they could see for bettering their actual conditions of labor—for getting in that occasional fishing-trip or the journey with the wife over the hills in the long-distance jitney.

Let us translate this more definitely and more intimately, and come to the exact testimony of a Great Northern fireman operating out of Havre up in northern Montana. He speaks, under the promise of no revelation whatever as to his identity, with great frankness. It is not easy for a railroader to speak frankly, particularly to a stranger. It is not encouraged in railroad circles, to put it frankly. But this man—he is a keen, upstanding American of the best type—speaks to you through me with absolute frankness. He begins with one or two observations as to the rank and file of railroaders in general to-day.

"When I started in this game," he says, "the men I worked with were mostly single and had neither dependents nor home ties. Their conversation consisted mainly in stories of the road, whose location wanders from Portland, Maine, to Seattle or to Winnipeg—'the Peg'—to Pocatello, to New Orleans, or to San Francisco. Conductors in charge of a train were very rarely men who had been 'made' upon that road; seniority did not mean much; men went from job to job as their fancy dictated. They tell a story up this country about a conductor and an engineer that will illustrate my point.

"You will begin by understanding that the rules of this road, as well as of all the others, provide for a standard watch—a watch that has been passed upon by a qualified and registered watch-inspector. There is also a rule that the conductor com-

pare time with the engineer before starting out upon any trip. In each division-office there is a 'watch register,' and every watch must be compared with the 'standard clock' and any difference between them noted upon the register. The rule states specifically that no watch can be called correct that is even thirty seconds away from the 'standard clock.' Now then.

"This freight conductor over in the eastern end of the State came to the engineer with his orders and handed them up into the cab. After the engineman had finished reading them, the conductor asked: 'What time have you got?' The engineer grinned and replied: 'What time have *you* got?' This time the conductor grinned. He reached down into his overcoat pocket and pulled out one of the small tin watches that are advertised across the land as having made the dollar famous. 'Seven forty-five,' said he, with great gravity. His friend, the engineer, also assumed solemnity, then pulled a nickel-plated alarm-clock out from under his seat. 'You're right, Tim,' said he, 'right to the minute.'

"Those days are passed. It takes longer to-day to get a regular run on most roads than it takes for a lawyer or a doctor to complete his college course. Seven years is about the quickest time to a run that amounts to anything. The railroader of to-day takes his work seriously, settles down and tries to be a good citizen instead of the old-time 'boomer' [the slang phrase for the former itinerants] that once filled up the business, and not in any way to its credit. But it's pretty hard being a good citizen under the sixteen-hour law and the Adamson Law which was supposed to provide a real eight-hour day and really never did anything of the sort. If we get in at four o'clock in the afternoon we don't know whether we are going out again at eight o'clock the next morning or eight o'clock the same evening. The one thing is just as likely to happen as the other. And how can friend-wife count upon her evenings with us at the movies?

"Let me be still more specific.

"Let's stretch that sixteen-hour day of which I was just speaking into a good practical work-day. Let us say that we will call you on the first day of the month for First No. 401 bound west out of Havre here. We will slip you 2450 tons and Mallet articulated compound No. 1801, and make the start at sharp four in the afternoon. Our lad at the fire-box gets sick over at Gilford and we tie you up there, 'on credit.' In other words you were four hours and thirty minutes getting to Gilford and yet your time didn't count after getting your 'tie-up' message; not until you are called once again. If by that time you are hungry or sleepy it is not the Great Northern's fault. It is following the rules of the game, just as every other road across the land is following them.

"Five hours later a train comes along and a relief fireman gets off. You make a fresh start at your trip. You still have eleven hours and thirty minutes to go, out of your sixteen hours of actual on-duty trick. Now see how you go it. While doing some switching at Chester you get a car off the track. After that your engine bursts a flue and dies. They release you once more, again on credit, and until four o'clock in the morning. At nine along comes another engine and you are called once again. You still have eight hours to work. Everything goes all right until you get to Shelby. You get a message there at two in the afternoon to do some switching. The conductor tells the dispatcher that if he stops to do this work the sixteen-hour law will get him before he gets in. The division superintendent butts in and says: 'We will give you credit for being off the track two hours at Chester, and that will give you plenty of time.'

"You cannot beat out the old D. S. He was born to the game. You arrive at Cut Bank at seven o'clock on the evening of the second, having complied with the law, technically at least, and are ordered to deadhead back to Havre on No. 2 leaving in fifteen minutes. You probably have a chance to get just a bite to eat before slipping on No. 2. It is snowing hard, in the dead of the Northern winter in fact,

and Two has a time of getting to Havre. It is six hours at least before you swing down in front of the depot there. Before you ever have a chance to get into the depot the call-boy meets you and as you have had your Federal rest—eight hours curled up on a seat in a day-coach—he wants you for First No. 403 to go right back to Cut Bank again. If you don't want to go you are a bolshevist. Exaggeration? Not one bit of it. I have been myself four days making the trip that I have just described to you, so you see that I could have made my illustration both longer and broader and thicker. If you think that I have exaggerated, stay in your office some day sixteen hours at a stretch, then get on the day-coach of a local train, ride eight hours, and cut in for another sixteen hours of office work again—preferably at writing a railroad book."

I have let this man close the case for the train service men. He puts it in its full strength and I think that he puts it well. No fair-minded American wants American labor poorly paid, and American railroad labor—upon which so much of our life and property is absolutely dependent—least of all. It has been a sort of tradition in this country that railroad labor should be paid less than similar labor in other industry—just why I never could quite understand, unless it be for the fact that railroad labor until a comparatively recent time has been a little more loyal to its calling than the labor of some other industries that might easily be mentioned specifically. The variety of the business, the opportunities for travel and experience that it gave, have been real factors in holding its wages very slightly yet very perceptibly under normal levels. And in the same way they have been factors in holding it back against normal industrial progress.

When one comes to the question of the shop-craft unions (I shall speak of still other branches of railroad endeavor before I am done) the problem becomes infinitely more perplexing. It is indeed with these newer union affiliations that the railroads are to-day having their greatest difficulties.

For the old-time brotherhoods, in which there is a fine flavor of reasonable conservatism, the average working railroad executive has a deal of real respect. Perhaps he realizes how much worse off he and his fellows would be if he had to substitute for them in train operation unions of the sort that are driving him mad in his shop-work. But the shops represent a real perplexity. Some of the roads, beginning with the Erie, have gone so far as to rent their repair-shops at division points for operation by privately organized corporations. In fact the Erie has gone so far as to follow this practice for its track maintenance in certain instances. A private corporation is bound neither by the national agreements of the Railroad Administration or by the rulings of the Railroad Labor Board out at Chicago. It can buy its labor in the open market and at the prevailing market prices—and at the present moment at obvious savings. But the effect upon the morale of a railroad of this remarkable practice of “farming out” inherent parts of its operation I shall leave to your imagination.

That the outside shop can and does work cheaply is shown by the experience of a plant in Buffalo which upon an actual invested capital of \$80,000 cleaned up more than \$100,000 actual profits in 1920 and expected to double this figure in 1921. Yet it was able to repair freight-cars for the railroads entering that important railroad point for about \$600 each, which was about \$200 less than the roads could do it for themselves.

There is a railroad executives' side to this situation, and it is a big side indeed. A certain large road in the central portion of the country decided to put the matter squarely up to its shop forces before proceeding toward the leasing of its repair facilities to outside companies, as we have just seen. It called in the heads of its shop-crafts unions and put the cards squarely on the table before them. It wanted to go back to piece-work, the method by which each and every man was paid for what he actually accomplished, a good old-

fashioned American way of running a shop or any other sort of business. The McAdoo administration abolished piece-work in the railroad shops across the land, and the output fell off greatly both in quality and in quantity. The railroads to-day are having a fearful time getting it installed again.

The general manager of this road of which I am speaking—he is himself a real red-blooded little man who came up through every phase of railroading through his ability and his sheer energy—told the shop-crafts unions just what he would do and what he would not do and when he would do it. If they would accept piece-work on a schedule 25 per cent. higher than that of 1917 and turn out the same good volume of work that they turned out in 1917, they would be making considerably more than the per-hour basis gave them in 1921. If they would not accept piece-work by a certain specified day he would then proceed to lease these facilities to outside corporations, much as it would hurt the road's pride to do so.

The men did not accept the piece-work system. And the general manager of the big road went from one end to the other of it leasing its shops just as he said he would do. When he came to the last of them he hesitated. It was the road's oldest shop. In it there had been made no little railroad history. Sentiment halted him. He thought of tradition. Remember, if you will, that there are as many times in railroading where tradition is a good thing as where it is an exceedingly bad thing.

While he halted a request came to his ear from a personal friend, one of the oldest mechanics in that ancient shop. His old friend wanted to see the big boss—he still called him "Billy." He came and brought a friend or two with him. He wanted to know why the big shop, with its six thousand workers, had been shut down for so long. The G. M. answered promptly. He told of his proffered plan for piece-work. The old mechanic made him repeat his statement.

"We never heard one word of it, Billy," he said.

"Billy" stayed two more days in that town. On the second afternoon he called a mass-meeting of the shop-workers in the biggest hall in the city. They came, enough of them at least to fill the place to its very rafters. He put the piece-work proposition to those men. They ratified it overwhelmingly. The next day the shop reopened and from that day to this has been a humming center of revived railroad industry.

There also is still another side to this vexed shop situation, and it too is a big side. I should not be fair if I did not give it at least passing attention.

With their insistence that their shops return to the piece-work system—and it seems to be a perfectly fair demand—the railroads are using every endeavor to bring back their shopmen to the high quality of workmanship that they attained before the days of the World War, and which has not come back since then—not until very recently at least and under the spur of widespread unemployment across the land. Yet, our railroads as a rule—there are a very few exceptions—have been most lax in employing modern or scientific methods of spurring up the production of their shopmen, in quality as well as in quantity. A year and a half ago I made an extensive tour of some of the most forward-looking manufacturing plants in America and found there for myself many ingenious plans for stimulating the interest, the enthusiasm, and the productive ability of the men. Shop committees, education, bonus systems—all these and many other well-tried devices at work, and successfully at work. I was appalled when mentally I compared these factory plans with those of the average railroad shop, which rarely has any at all.

One other thing of even greater importance. In these days no more than those, there still is no assurance to the shop-worker of continued employment. The great haunting fear of being "laid off" forever is just ahead of him.

I recognize clearly the difficulties that would await any

systematic attempt to insure continuous employment to the worker in the railroad or any other sort of shop. Yet the fact remains that the railroad shops have not always been as fair as those in outside industries in keeping a well-filled payroll, even in seasons of great depression and stress. That such a neglect of human obligation reacted against them in the war-time days is not to be doubted. No really permanent solution of the railroad shop problem—it would be pathetic to regard the process of leasing out the shops to outside corporations as any long-time solution—can afford to ignore this factor.

I have known a railroad under orders from the men away up at the top—the president or the board of directors—to make sweeping and senseless reductions in shop and maintenance forces in order to make a quick showing of apparent savings in operating costs, for financial purposes known best to those same men, higher up. The futility of such moves needs no discussion; what is saved to-day on necessary maintenance of rolling-stock or other physical plant of the railroad must be expended to-morrow, and generally in larger measure. They would be laughable were it not for one thing, the human misery that almost invariably follows in their trail. How very much greater the wisdom that now and then and again tempts a railroad to use a dull season for the repair or even the reconstruction of its equipment, for the rebuilding of lines or even the construction of new trackage!

Therefore I am repeating—and adding—that no permanent solution of our railroad problem can be reached that ignores the right of the faithful and loyal employee to continuous service. It may be necessary to cut his wage. That is a situation that may confront any man in any business or profession. But save for fair cause he has an inherent right to continuous employment. This should be put down as a real fundamental of the railroad industry.

Railroad industry! Railroad tradition! Railroad morale!
Give them a chance. Let us have a scientific way of develop-

ing them once again; let us have a scientific yet a simple and humane way of studying out these surpassingly great problems of the human factor in our railroad operation; in the hours and conditions of his working, the cost of his living, the reckoning of his compensation. To such a problem—a problem within a problem—we now have arrived. And we shall begin its consideration.

CHAPTER VII

SOLVING THE RAILROADS' HUMAN PROBLEM

IN some of the real wisdom that wrote certain portions of the present Transportation Act it was decided that the newly created Railroad Labor Board should be kept entirely separate and distinct from the Interstate Commerce Commission. The one had neither authority nor jurisdiction over the other. They were even apart geographically; the one at Chicago, the other at the national capital. There was a definite and convincing reason advanced for this segregation. It was argued, with genuine good sense, that the business of wage-making should be kept entirely separate and apart from that of rate-making. In other words, wage-making was to be based upon living-costs—the sort of thing that the Lane Commission tried to do, even though hurriedly, and that the railroads themselves had failed to do.

That the Railroad Labor Board, once appointed, took its new task seriously, I do not for a moment doubt. I think that it tried and still is trying to solve the entire question in a really scientific and human fashion. It is a political board, to be sure. It could hardly escape being a political board. But I believe that it is rather better than the majority of its kind. It is a common experience here in America that these newly created boards are likely to rank higher in their personnel at their outset than after they have become old stories and pliable in the hands of the professional politicians.

Yet I am not at all sure that the Railroad Labor Board was a necessity, not at any rate as a permanent organization. We Americans are all too prone to create boards and commissions for almost every sort of conceivable situation. We dote upon

chairmen and upon directors. We adore secretaries and under-secretaries and under-secretaries to under-secretaries and all the rest of it. It is a national weakness, and an organization like our Railroad Labor Board is after all but a single expression of that weakness.

Contrast that cumbersome method of ours with one which was adopted in Great Britain but a year or two ago and which so far has apparently given absolute satisfaction to both the rail workers and their employers over there.

Under the wage agreements between the railway workers of the United Kingdom and their executives the wage-scales have been fixed upon a basis which permits them to rise or fall as the cost of living rises or falls. These agreements were signed more than a year ago. The official charts issued by the British Board of Trade, and held by all save a few of the most radical of labor leaders to be both accurate and impartial, are taken as the basis of the railway wage. The charts come as the result of repeated and regular investigations by the Board of Trade agents into house-rentals, clothing, food-stuffs, and all the other essential factors that enter into living costs. Upon them an arbitrary reckoning of 125 points was fixed as the maximum that these should reach after the period of after-the-war readjustment was fixed.

But despite this fixing of a purely arbitrary figure the cost of living refused to stay put. It steadily rose until two years after the signing of the Armistice the Board of Trade figures had reached 169 points. And British railway wages had risen even more than ours. A station-porter, who in the pleasant English days before the coming of Armageddon had been content to receive fifteen shillings a week, found himself in January, 1921, receiving sixty-six, an increase of considerably more than 300 per cent. To-day he is getting a little less pay. At the time that these paragraphs were being written the Board of Trade's entirely arbitrary but very scientific reckoning of living-costs had already dropped to 141 points and was going down further yet. The station-porter's weekly

wage had dropped three shillings, and Sir Eric Geddes, the British minister of transport, was beginning to predict that a continuation of this lowering of wage-costs would be reflected in the not distant future in lowered passenger-fares and freight-rates.

For definitely it is fixed that for each five points that the Board of Trade's cost of living report drops or rises the railway employees' wages shall drop or rise a shilling a week. But they shall never drop to the depths of the former pay-envelope; minima have been fixed ranging all the way from 200 per cent. of the pre-war wages upward. In the case of our station-porter the minimum of the future is to be forty shillings a week, which is considerably better than fifteen. Yet fifteen was in truth an outrageously low figure, even eight or ten years ago. British railway wages were then decidedly too low. Now they are nearer a fair figure, and so are likely to remain.

Why the American railroad wage could not have been fixed upon some basis as this is difficult to understand. The fairest, the broadest-minded, the most human of our railroad executives across the land say that 90 per cent. of their difficulties with their men would be wiped out entirely if only they could have direct dealings with them. Witness the example which I showed in the preceding chapter; the big and representative road which sought to install a piece-work scheme and, working through the leaders of the shop-crafts unions, found that its actual shopmen had not been consulted at all in the entire transaction.

The Pennsylvania railroad has fought desperately for the privilege of direct dealings with its employees. Three years ago its operating vice-president, General W. W. Atterbury, upon his return from France where he had had charge of the movement of our American troops and munitions, went on record as saying that the time had come for the rank and file of our railroaders to have a distinct voice in the operation of the properties. This does not mean in this instance that

the Pennsylvania would become enthusiastic over the admission of direct labor representatives to its board of directors; such a genuinely progressive step still is quite beyond its imagination. But it has sought—and, I believe, honestly sought—to establish some sort of direct relationship between the great body of its workers and its executive officers.

In accordance with such a plan the Pennsylvania started more than a year ago toward the election of employee representatives from its various shops. It turned its back upon the national officers of the shop-crafts union and said frankly that it preferred to deal separately with its various shops and their men as distinct and separate entities. One of the sharpest quarrels that the railroad managements have had with the national agreements has arisen from the fact that these contracts take no pay-roll cognizance of whether a worker is living in a big city, such as Philadelphia, or a very small one, such as Bradford—either Pennsylvania or Ohio. Under the national agreements the Southern Pacific would have to give the same pay to a station-agent at Orange, California (which is almost heaven), as to the agent at Winnemucca, in the Nevada desert (which is something less than heaven). In other days the Winnemucca man was given what corresponded to a bonus salary, in order to compensate him in part for the bleakness of his surroundings. Under the national agreements it was a little difficult to get a good man to go to Winnemucca—to put the matter mildly.

The Pennsylvania in accordance with its expressed home-rule principle held that the employees elected as shop-craft representatives must be bona fide workers upon the pay-rolls of the Pennsylvania railroad. The shop-crafts union leaders claimed the right to have the names of the local organization officers appear upon the ballots. The national headquarters of the shop-crafts union also made loud protest. It appealed to the Railroad Labor Board, which deliberated ponderously upon the crisis and then ordered the Pennsylvania to proceed

toward a new election, this time along national and not along individual shop lines.

The Pennsylvania protested against the Labor Board's ruling. Its protest was not heeded. The board after a rehearsing stood by its decision. Then the Pennsylvania appealed to the courts, where the entire matter is at present ensnarled. The railroad is loud in its protestations that it is not attacking the Railroad Labor Board as an organization; that it merely is seeking to keep it within the bounds laid down by the intent and purpose of the remarkable Transportation Act, which, in the long run, may come merely to a fine use of words.

The other railroads have not as a rule joined with the Pennsylvania in this protest. On the contrary they have proceeded rather rapidly in conforming to the Labor Board scheme, by joining in groups to set up local courts of arbitration with their men in various large centers of the land. Is this because they have loved the Labor Board idea? I hardly think so. I think that the real reason is because they have realized that in the difficult hour of transition from governmental to private operation—and, consequently the almost inevitable lowering of wages—the Railroad Labor Board, and the Railroad Labor Board almost alone, stood between the nation and a general and calamitous strike of transportation workers. This of course was before the coming of the industrial slump and the release of several million workers into the labor market. It was a real factor in helping to prevent the strike in October, 1921, which so many of the railroad executives really wanted and which the railroad workers, knowing from the outset that they would be beaten, did not want.

For these things alone the Railroad Labor Board probably has been worth all this cost—and the cost has not been small. Yet that there could not be a more direct pathway to them than the creation of a brand-new expensive political commission I shall always deny. I have shown the direct short

cut that Great Britain took in railway wage adjustment. Is it inconceivable that the United States might not occasionally take a short cut of her own in these labor situations? Was the creation of another political board an absolute necessity?

These are political questions, not primarily those of transport, and therefore I shall not answer them here further than to suggest that if the Railroad Labor Board makes at least one thorough, scientific, and impartial study of living-costs in this country—in big towns as well as in small, in North, in South, in East, in West—it may perhaps justify its existence and pave the way toward the adoption of some such simple method as we saw adopted overseas more than a year ago.

It is however a transportation question to know what the railroads themselves purpose to do about bettering the situation between the workers and themselves. We have hinted at the expressed intentions of a high officer of the Pennsylvania. So far so good; but not very far. If the foolish national agreements are to be completely abrogated—and apparently they are to be—what improvement in the relationship between the carrier and its employees is to be substituted for them? We have seen the move toward the establishment of local boards of arbitration by individual groups of the carriers. So far so good again; but again, not so very far. The per-hour wage has frequently been set down as the gold standard of railroad pay. Yet to-day in the eyes of the operating heads, at least, it is no standard whatsoever, save in shop-work where they reckon it as but a very base alloy and where they would regard piece-work as platinum—set with diamonds, at that. All of which of course is from the point of view of the executives, and not at all from that of their workers.

But what are the railroads going to do about the recognition of real merit and real industry in the individual worker? I do not mean the brilliant fellow who forces his way to the top. Frequently it is the plodder, the man unseen, unknown, who is the most valuable human cog of the transport machine.

Will the railroad, huge machine that it is, find him out and give his loyalty, his industry, his energy—in many cases, his initiative too—the recognition that they demand? Can it do this even if it will? I have known many a railroad manager to complain to me that the reason he could not gain a greater efficiency out of his workers was because of the very scattered and attenuated location of his job. Real supervision, like that of a factory or a large office, was out of the question. Men might and did loaf on their jobs. Conversely it is of course equally difficult to discover real merit along the line, particularly the modest and conservative type of merit.

What too is the railroad going to do about adjusting hours of labor for its workers so that, whenever it is possible, the worker shall sleep at home? We have seen already in the pages of this book how often this is not possible for the employees engaged in the operation of the trains. In a little while we shall come to the vast possibilities of the use of the gasoline-motor unit in local passenger transportation upon our standard railroads, and I shall be urging as a corollary to its introduction a much increased service as well. It ought, by a little skilful planning, to be possible to use the eight hours of a railroader's time to extremely good advantage, both to himself and to his employer, by an ingenious dovetailing of runs. Up this line, across that, back on a third—the possibilities are as infinite and as fascinating as those of a game of chess, and all giving the maximum of eight hours' service to the railroad, as well as the square deal to its worker. Could more be asked?

And then, for a final question, what is our American railroad going to do about the assurance of continuous employment to its workers? We have touched upon this question already. It is a particularly serious one, not alone in shop-work but in every other department of the railroad. The fear of losing one's job becomes at all times a decided factor both in the statistics of labor turnover and in the individual morale of the worker. In a single instance of a typical large trunk-

line railroad a total force of 80,895 workers in June, 1920, had been reduced by June, 1921, to but 56,091 and has been dropping ever since, which means quite naturally that the men who remain are spurred to the best of endeavors. The road tested this the other day. It asked all of its employees to go out in their spare hours and see if they could solicit some freight for it. In ninety days these men, entirely apart from the regular solicitation forces of the line, had brought in more than 1400 car-loads of freight which otherwise would have gone to its competitors. A good percentage showing was made by the mechanics and other workers of one of its smaller shops. Yet in the early part of 1920 the men at this shop had all gone out on strike because a train accident had delayed the arrival of their pay-envelopes for two brief hours!

Here then is morale brought back in a perfectly human fashion, yet I doubt if in a good one. In the long run fear cannot make loyalty or initiative or ambition. The day will come when abounding prosperity will return to the carriers, when the labor markets across the land will be empty of possible material. Then labor may remember. Memory is quite as human a trait as fear. And the pendulum will be set high again at the workers' end of its arc.

I feel that we shall be compelled to find far better ways of bringing loyalty and initiative and ambition into the hearts of our workers of to-morrow—the other qualities that go into the making of that highly modern term “morale”—and so bring back a genuine revival of our American railroad tradition. We shall start of course with a good wage. We already have that. The average annual wage of the American railroader is now \$1700 for eight hours of daily work. In 1913 he worked ten hours a day and received but \$761 on an average. His hourly wage is now about 150 per cent. more than it was eight years ago.

Remember all the while, if you will, that I am not urging that the railroader is overpaid to-day. I do not believe that upon the average he is any more than well paid—in all cases

not even that. And I do believe that these entire pay arrangements are still far from being upon an entirely just and equitable basis; the conditions of his working arrangements, so very vital to the return of our American railroad morale and tradition, are still in the infancy of a really scientific and human adjustment. Here again the situation is open to further explanation.

There are, roughly speaking, three classes of railroad employees. The railroad president and the small group of high-priced executives closely about him constitute the first of these classes. This is small in number. It contrasts with the two millions and a half of the rank and file of railroad employees in the United States.

Here then are the right and the left wings of our railroading. Between them is a third class, not often in the public eye, but in many ways the keystone of the arch of operation. This third class, not large in numbers, consists of the minor officers of the various active departments of the railroad. It is an immensely valuable factor in successful operation; in fact the great driving force behind it. Yet its position is not a happy one. At all times it is a buffer; it is caught between the upper and the lower stones of a mill which attempts to grind finely. From below comes the natural and unending pressure to increase expenses; from the high executive offices above comes another, to hold down expenditure. From somewhere between these grindings the division superintendent or engineer or mechanical superintendent must produce results. Of necessity, his is a driving job.

Ofttimes it has been a thankless job as well. For there has been little outside protection for this valuable central class of railroad labor. Numerically it is not large enough nor important enough to command the favor of influential politicians. As we have just seen, the rank and file does. This is at least well paid. And as the railroad man at the bottom has received attention, so has the railroader at the top. The executives have always succeeded in taking good care of them-

selves. They know that the large financiers and banks and other institutions which to-day are the heavy stockholders of our railroads are utterly dependent upon them. Without them their securities would fall even flatter than already they have fallen, which means that the railroad president and his important vice-presidents can command salaries that are at least commensurate with those paid in other industries. Their worries are those that come from their responsibilities, not from their pocketbooks.

But the middle class of the railroad personnel—like the middle class of the world outside—is caught to-day, not only with responsibility for its job, but with a deal of worry too for its wallet. Salaries between the upper and lowest classes of railroad workers take a fearful fall. In theory they should form a gentle curve, a sloping sort of descent. In practice, too, they should curve. In truth they do not. They drop. I have known of repeated cases where the superintendents of railroad divisions—a railroad superintendent is supposedly the prince of a transportation principality—have actually received less than some of the locomotive-engineers who are working for them. In any such scheme of affairs the incentive or desire for promotion cannot be very great.

As a matter of fact very much of that desire or opportunity for promotion passed away long ago, which is one of the significant reasons for the sad decline of our American railroad tradition, and which is also one of the most alarming symptoms of the serious illness of our sick man of American business. He is making no provision for the future—in this serious necessity of providing good new railroading blood for oncoming years. There should be fresh generations of material for future railroad executives tramping forward, and there are none.

"Over-regulation," says one transportation executive at once, and leaves us in the belief that here is the sole cause of this sad deficiency.

He is right—partly right. For more than twenty years the

railroad business in the United States has been under constant attack—rightly or wrongly, and generally both. A business under constant attack is not one that makes a large appeal to a young man just seeking about for a future career. One of the very ablest of our railroaders, Daniel Willard, president of the Baltimore and Ohio railroad, recently went on record as saying that at the present time he could not recommend the business in which he has spent a lifetime as a proper opening for his son.

Add to these things the fact that the business itself has taken very little thought as to the morrow in this vital question of renewing personnel—has not only failed to establish courses in various phases of railroading in the technical schools across the land, or made any concerted effort to bring the best of their graduates to their ranks, but for years has ridiculed and humiliated these highly trained young men when they have sought to enter its doors—and one may easily perceive why the best of our young men in recent years have not gone into railroading. The automobile industry, mining, electrical work, manufacturing of nearly every sort, the professions, even retailing, have called to them, and not in vain. Each has received its fair proportion of them. But railroading has been left aside.

Here is a most serious phase of our railroad debacle. It is not one that can be quickly mended. Take the nearest "Who's Who" and note the birth dates of the railroad men that you find there. With a few exceptions they are not young men. They are getting on in years, while those who know them personally know that their tremendously increased anxieties and responsibilities have grayed them even beyond their years.

A young man whose heart and soul alike thirsted for a better knowledge of the rail transport business recently asked a veteran railroader of my acquaintance how he could get into it. He had been offered a job in the local interchange yard, firing a switch-engine. That job had a good deal of appeal

to him. He was perfectly willing to don overalls and get down to hard manual work with a shovel. But the old railroader shook his head.

"No, no, Harry, that is not the way that it is being done nowadays," said he. "Let me advise you."

Then he explained. Harry might and probably would develop into a good fireman, like President W——. Eventually he would probably have a fine passenger run and get as much money perhaps as his division superintendent, probably more than his trainmaster or his road foreman of engines. But that would end it. He would be a working man, albeit a well-paid working man, but nothing else—never an officer. The new caste in our railroading would hold him tightly down. Far better that he should pocket his pride as a graduate of a pretty good Eastern university and become an office-boy in some railroad office and study all the phases of the business at every opportunity that presented itself. There was chance there of his getting ahead in railroading, perhaps to the very head of it. The taint or stigma of unionism would not be upon his shoulder to draw him down in the estimation of the big men who won and control our carriers.

That was frank talk, but accurate. At last we *have* achieved an industrial caste. The barrier is there. The railroads suffer from it greatly, but the men who to-day control them are not going to remove it. Here and there across the face of the land you will find a few minute exceptions, a trainmaster here, a master mechanic there, perhaps all the way across the land as many as ten or a dozen superintendents who have risen from the brotherhoods. But in our big national organization these few are as nothing. The barrier is being well maintained. And as long as our railroads are owned and operated as at present, it is likely to stay put.

Granted then that this great wall is to be kept, and assuming that the railroads can tide over their present personal deficiencies, how can this distressing situation be avoided in the future? Easily enough. It comes down in final analysis to a

wage question. Our railroads can and should establish courses in the various phases of their business in many of the large colleges and training-schools across the land; they should have methods of systematically scanning the output of these schools and of securing for themselves at least their fair share of it for proper training toward executive possibilities. Other industries in America long since have shown the possibilities of such methods. Yet even such a program will fail if the salary inducement is not made both fair and attractive. I spoke but a moment ago of the lack of curvature, the tendency toward right-angledness of the salary line between the top class of railroad personnel and the bottom. It too has arisen in other businesses, and they have had to solve it. Here is one case in particular.

It is a nation-wide utility company, not transportation, but in a large sense akin to it. It divides itself between the Atlantic and Pacific into various subsidiary companies, each fairly autonomous. These companies, working in co-operation, have evolved a salary plan that is attractive to their personnel. The company heads each receive as an average from \$35,000 to \$40,000 a year. Immediately beneath them are their vice-presidents, three or four at from \$20,000 to \$25,000; beneath these in turn a group of ten to a dozen sub-executives at \$15,000 to \$18,000, and then a large group (thirty-five or forty men) at from \$10,000 to \$12,500 annually. The curve irons out to a comfortable rotundity. The salary appeal stands strongly; the opportunity of getting into that third sizable executive group of good wage standard is large enough to bring young men out of college to these companies in a larger number than they can accept, which gives them a most excellent opportunity to pick and choose.

A plan such as this would be easily applicable to almost any one of our American railroads of to-day, which almost invariably are under-staffed rather than over-staffed. And the first objection to it, the cost, is discounted by the fact that even to a comparatively small line it would not add more than 5

or 6 per cent. to the pay-roll—perhaps not more than a fraction of 1 per cent. to the total operating cost. The utility company which I have just quoted boasts that it could cut its entire pay-roll down to a maximum of \$5000 a year for all of its officers and still reduce its total pay-roll cost less than a mere 1 per cent., which speaks volumes for the even distribution of its official salaries.

Given a broad-minded fairly planned salary scheme such as this—and having provided always that the scheme was well advertised—and the average railroad ought to begin to pull itself through on this difficult question of supplying a fresh quantity of proper officer personnel for itself. To this might well be added, as has already been suggested, a systematic plan for teaching the various phases of transport in many of our schools and colleges and then closely scanning the output of these classes for future executive material. That such a plan would work and would be worth far more than its comparatively modest cost, is the opinion of far-seeing men within the railroad industry as well as outside of it. That more attention is needed to this vital phase of our transport problem is clearly indicated by the action of the Pennsylvania railroad immediately after coming out from government control, in appointing a high personnel officer with a title and prestige none the less than vice-president.

The problem of personnel and its continuous and permanent supply, long since recognized by other of our industries than that of railroading by the appointment of well-paid specialists with staffs trained to handle it at best efficiency, is not in itself a particularly perplexing one. A fair degree of study and thought will solve it almost invariably. One reason perhaps that so many of our railroads have not met it properly up to the present moment is because only yesterday it became apparent as a really vital matter, not merely to their success, but to their very continuance. It was but yesterday that trades-unionism became a dominating and fairly autocratic force in their operation, that the traditional stairways of progress

from the engine-cab or the caboose or the little yellow depot became so firmly closed and abandoned, and that the railroads were really forced to look out into the broad world beyond for future personnel.

Our railroaders as a rule have not lacked technical ability. They have not lacked honesty. They are not lacking in these qualities to-day. Taken man for man I doubt if their high average for both of them could be exceeded by any other American industry or profession, or even equaled throughout the rest of the civilized world. That many of them have lacked both vision and imagination, I am going to contend at other times. For the present it is enough to say that theirs is indeed a difficult job, that, leaving aside the question of securing future executives, the task of the existing ones is very far from a sinecure. The relationship of the human factors in the operating phases alone of our railroads, from the top executives down through the mid-executives to the rank and file, is this very day and minute one of the vastly serious phases of our whole railroad muddle. For just as the problem of new personnel is to an extent a future one, so is the deplorable loss of the old tradition to an extent a past one. There is not much use in crying over spilled milk. The thing to do is to find just what can be saved from the spilling.

Jinks who reads this, and in his more serious moments conducts a cotton-factory, and Blinks, who has the biggest retailing business in his town, may both laugh at the thought that their railroading may be a supremely difficult business. Each of them *knows* that *his* is the most difficult business in all the world and has a thousand convincing ways of proving it. But Jinks may summon all his operatives into a hall at five minutes' notice—he has them all at work inside of a brick wall—and put the fear of the Lord (and of their boss) into their hearts in another five. While Blinks, as a matter of principle, reads the riot act to his clerks every morning as soon as he has unlocked the doors of the store.

A railroad's employees may be outstretched a thousand miles or more. Remember again that the railroad itself is in truth a narrow ribbon, oftentimes no wider than the right-of-way of a single track, far-reaching and tremendously attenuated. A thousand employees here, and then twenty, thirty, forty miles to the next group of more than a dozen! What a small opportunity for any sort of close superintendency or inspection! How hard the problem of attaining a real morale! With the irregular demands of energy that a railroad makes upon a man's time—two trains perhaps within the hour, and then perhaps not another for three or four—it can rarely utilize a man's eight hours at best advantage. While if an employee is at all inclined to idle upon the job how rare the opportunities for loafing—or if not for actual loafing, the failure to work in his allotted hour to the top notch of his ability! These opportunities exist, and unless Mr. Ford's plan should become a howling success, must continue to exist, in a tremendous variety.

Our station-agent no longer has to work twelve hours a day. Under government control his hours began to approach those of an easy-going banker. He ceased to worry about the prospective passenger who may be thinking of going to California and who by proper persuasion may be induced to go by the S. A.'s line. All of which is another of the many evidences of the decline of our fine old-time railroad tradition.

Not that any fair-minded man would wish a return to the outrageously long hours, low pay, and difficult working conditions of say twenty years ago that it tolerated and condoned. But there ought to have been a happy medium between those conditions and the ones of to-day. It should not have been so very difficult after all to figure out a fair compensation and fair hours and keep a reasonable amount of affection and loyalty in the heart and mind of the employee for the property that he serves. Without these perfectly human qualities working for it within its personnel no railroad, limited as we have just seen by overwhelmingly difficult conditions of superin-

tendency and inspection, can operate at anything like efficiency. It suffers and suffers greatly. And its patrons suffer in consequence.

For here again, Blinks and Jinks, does the railroad business differ from yours. If you cannot inspire your workers to affection and loyalty, and through these to efficiency, you fail. Your factory or your store closes. But the community that you served may not suffer greatly—not for any length of time. It readjusts itself; it buys its cotton at another mill, its dress-shirts at the store across the street.

But if your railroad should shut down, unless it should happen to be a sort of fifth wheel in an unusually competitive territory, the whole community would suffer tremendously, immediately and permanently, while any perceptible lowering of the quality of its railroad service brings instant trouble and discomfort to it. When, as a war measure, the old-time station-agent, reared in loyalty and tradition to render a real service to his public, became even for a time the government bureaucrat, the traveling public quickly realized the difference. And no other one thing perhaps has done more to render the phrase "government railroad" more obnoxious to the average American to-day than the conduct toward them of many railroad employees during the twenty-six months of Federal control. That the men in control of the Railroad Administration took steps, well-planned but fairly impotent, to bring about better politeness and courtesy among the railroad servants is not to be denied. But the problem was quite beyond them, the distances between the administration offices at Washington and the men themselves much too far to be efficiently traversed. Letters and bulletins urging courtesy were puerile. The railroad rank and file laughed at them. Why courtesy? They were autocrats. Did not the first director-general himself proclaim that in the earliest days of his regency at Pueblo and again at El Paso? After such proclamation these courtesy bulletins were to be regarded as just so much waste paper.

Blinks and Jinks both know that in their business courtesy

comes through contact. Blinks in his big retail store knows that courtesy is one of the invaluable and irreplaceable assets of his business. So he not only preaches it but inspires it through contact, through knowing his sales-people as well as the rest of his working force personally, and through trying to help them work out the many little problems that perplex their lives. Comparatively few—a mere nothing—of Jinks's employees ever come in personal contact with his customers. Yet he too has found long since that courtesy pays dividends, plain dollars-and-cents dividends. And so he too is preaching it, has well-salaried experts, under the title of social workers, who give their days toward bettering the lot of his factory family, with the courtesy idea well in the forefront of their endeavors. Through personal contact the thing is accomplished, and with it enthusiasm and efficiency—all together the sort of thing that we have learned to call morale.

That this morale, the old-fashioned tradition of American railroading, can be returned to us I do not doubt. It cannot be easily accomplished. It will require a deal of study, and the exercise of great tact and diplomacy. It will have to be preceded by an end of union-baiting and of the more subtle but nevertheless bitter attacks upon government regulatory bodies. That there will have to be less governmental regulation or else the private operation of our railroads will collapse, is the handwriting that already is written upon the wall. That a lessening of such regulation will of itself bring the best blood of the land once again to American railroading or a better spirit of loyalty and energy and initiative to the present personnel, I do not for one minute believe. If that were so, the solution of our vexing problem would be easy. We simply would have to put the hands of the clock backward again, return to 1887 or thereabouts, and, presto! our troubles would be over.

Unfortunately no such quick cure awaits the sick man of American business. The restoration of his health, putting him soundly upon his feet once again, requires a great deal

of study and of thought. Already I have hinted at two possible embrocations in this very sore spot of his labor relationships—the readjustment of wages (it is hardly going to be possible to lower them far again unless possibly under some adaptation of the very sane British method which we have just seen) and the beginning of an organized movement to recruit and direct the best of our young men into a business which normally should have great fascination for them. There is another ointment which I have saved for the last.

Coöperation beats regulation. It always has and it always will. Already we have quoted Vice-President Atterbury of the Pennsylvania as saying that in the future the employees should have direct representation in the management of the carriers. That is one of the few 100-per-cent.-right statements. Carried to the final degree of actuality it would mean employee representation upon a railroad's directorate. That such a representation would be a benefit to labor I shall not deny. But I am thinking of quite another thing, of the vast benefit that it would be to the railroad itself. There is the real kernel of the nut.

Some day we shall progress to the point where the directorates of our railroads will be very real directorates indeed, not groups of busy and harried bankers dropping in once a week for an hour or two for their twenty-dollar gold-pieces. The farce that such a representation is necessary to a proper protection of the underwritings will then be completely exploded. Possibly the most successful single private business in America, Standard Oil, is to-day operated upon the continuous directorate principle. Its directors give their entire time to the company upon whose board they sit. They are paid generous salaries for their entire time. They are experts in the refining and the selling of oil. And the board which sits each business day at eleven fritters away no time whatsoever in listening to the fads and whimsicalities of inexpert representation.

Some day some one of our railroads may have the vision

and the enterprise to adapt that plan to itself. If so it does it will at one time have solved many of the most vexatious present-time problems of its operation. The curse of absentee landlordism will then disappear almost automatically. And if that railroad has the future vision and enterprise, and the courage, to place at least one or two genuine labor representatives upon its board, 99 per cent. of its labor troubles will also disappear, also automatically. Already it has been suggested that future railroad legislation insist that such representation be made. I should hate to see such a step taken, by law. It would be worthless. It would be merely multiplying the evil of over-regulation from which our roads already are suffering. But I should dearly love to see the step taken in the only way it should be taken—from the heart of an American railroad itself, as a matter of good sentiment, good tradition, good business sense. Then and then only would it bring its great reward—a revival of loyalty, energy, ambition—the reincarnation of the spirit of our fine American railroader of yesterday.

CHAPTER VIII

THE POSSIBILITIES OF ELECTRIFICATION

THE immediate needs of our railroads of the United States divide themselves into three great classes: human, physical, financial. I shall not assume to say which of these three classes is most vital or most important. In my own mind I frankly do not know. Already we have dipped into the human phases. Now for mere convenience in the telling, we shall give consideration to their physical needs.

Here again there is further division. A railroad in its physical aspect consists of the track that things run upon and the things that run upon the track. The track, in the broad sense in which we are now considering it, consists of far more than two steel rails set upon wooden ties or sleepers which, in turn, are set in a graded roadway. It means bridges, tunnels, switches, signals, terminal and intermediate stations, buildings, passenger and freight-houses, engine-houses, shops, and all the rest of it. And upon track, in this and every other sense the things that run, are to be translated as locomotives, of a variety of forms, and cars, of an infinite number.

And because cars are, as a rule, quite helpless without locomotives to push or to pull them here and there, let us begin with the locomotive. For the moment, we are going to pass by the steam locomotive, and the large possibilities of its development far beyond the present point, and come direct to the form of tractive power which has at least the most popular appeal to the modern imagination—electricity.

The use of electricity as a motive-power upon this country's so-called standard railroads (the electrical engineers like to call these heavy traction railroads) is no novelty. It began

nearly thirty years ago when the Baltimore and Ohio railroad completed the electrification of its then new tunnels under the City of Baltimore. The move was made primarily to remove offensive smoke conditions, particularly in the main tunnel connecting Mount Royal and Camden stations, nearly two miles apart. In fact to-day trains going from Mount Royal toward Camden, a steady down-grade, are operated without the trouble of attaching electric locomotives to them; it is an easy gravity run for the two miles. For the up-trip the electric locomotive is attached at Camden Station in front of the through steam locomotive of the train and finally detached about two miles east of Mount Royal, by the simple process of running ahead and upon a facing-point switch—an adaptation of the old-time "flying switch."

The obvious success of this early installation slowly led to its imitation elsewhere among the railroads of the land—a third-rail suburban plan on the New Haven from Bristol through New Britain to Hartford, Connecticut, and a branch of the same system down to Nantasket Beach, Massachusetts. Yet the process was slow indeed. Your typical railroader is particularly averse to novelties. It was not until about fifteen years ago that electric installation of any considerable size came into being: the large suburban services that were created by the New York Central, the New Haven, and the Pennsylvania, coincident with the similar suburban services in Oakland, California, and in Portland, Oregon, and in some of the longer tunnels of the land; the Hoosac tunnel of the old Fitchburg, the tunnel of the Michigan Central under the Detroit River, and that of the Great Northern through the Cascades in Washington being notable instances of this last sort of installation. After these came the large installations of the Norfolk and Western through the Alleghanies and of the Chicago, Milwaukee, and St. Paul—of which much more in a moment. And after this a great hiatus, the huge rise in material and construction costs of every sort, the war, and the present paralysis of our railroad development.

Recently there has come a demand, from the laity of the railroad world at least, that there be a revival of progress in this extension of electrical power upon our standard railroads. McAdoo sensed this well before he left his high office and said that at least one-fifth of the railroad mileage should be operated electrically at the earliest possible opportunity. And more recently there has come a larger realization to the land of its wholesale waste in potential water-power, as well as a gradual closing and increasing expense of its coal-supply.

The big builders and designers of our steam locomotives have not been asleep to this movement. They have met it in very recent years by a real improvement in the quality of that machine. For many years the steam locomotive grew in quantity—in mere size and bulk, if you please—rather than in quality. Once again we were captivated by the use of the word “big.” When we read not many years ago of the coming of the first 200-ton locomotive we drew in our breath a little. Four hundred thousand pounds! And without its great load of coal and water at that. What a monster! Here, indeed, was Frankenstein. But what old Frank could do in smashing down bridges and rail levels we wotted not of. Yet what was the 200-ton locomotive compared with the 300-ton and the 400-ton monsters that the Santa Fé and the Delaware and Hudson began installing about a dozen years ago? It seemed as if no limit could be reached.

Yet the fact that a size limit could be reached and apparently was reached, was still no sign that the limits of steam locomotive efficiency had even been approached. Because the methods by which these limits may be extended, apparently almost indefinitely, are so complex and withal so fascinating, I am taking them up in a separate chapter of this book. This chapter and the one that follows it are the record of the achievements and the possibilities of the electric locomotive, whether as a separate unit or merely as a compact bundle of energy stowed away in the trucks of a passenger or freight-car. That locomotive shall receive our first consideration.

Now despite all the improvements that we shall see have been made upon him, the American steam locomotive of to-day seemingly remains a laggard. In the days when his fuel was both plentiful and comparatively cheap one might merely say that he was extravagant and let it go at that. But now when coal if not scarcer is far more expensive his extravagance has become totally unwarranted.

In 1918, the most recent year for which the figures are available, our steam locomotive consumed 163,000,000 tons of coal in addition to 45,700,000 barrels of oil. Reducing these last to their coal equivalent, we have a total fuel consumption expressed in terms of coal of 176,000,000. And when we measure that consumption alongside the freight carried—1918 was one of the record years of our American railroads—it will be seen that for every thousand tons of freight that they moved one mile they burned 290 pounds of coal. Through any modern steam-generating electric station—the figures taken from the modern power-houses of the few steam railroads that already have been progressive enough to install electric motive-power—an even hundred pounds of coal may easily move more than 1600 tons of freight one mile—in the accurate phrasing of the railroaders themselves, 1600 ton-miles.

In other words the same freight traffic moved by electricity through steam power houses would have required but a little over fifty million tons of coal. From 120,000,000 to 130,000,000 tons of coal would have been saved—a saving roughly expressed in money at between three-quarters of a billion and a billion dollars, which of itself would be a 4 or 5 per cent. dividend upon the total capitalization of our American railroads.

In the saving that we have just shown we have presupposed an absolutely universal substitution of electric for steam power all the way across the land. This however is not practical to-day; nor is it likely to be practical in any day to come, for every mile of our 275,000 miles of American railroad system. On the other hand this huge estimate of national saving is

based entirely upon the coal-consumption basis. The most impressive savings that you shall see before you are finished with this chapter are those accomplished by our lines which have bended water-power, hitherto wasted, to the movement of their trains. I have stood upon the brink of Niagara Falls and there seen train after train arrive and depart, each hauled by a steam locomotive. And all the while I knew that the force and power of that mighty cataract was lighting the homes and driving the street-cars of Toronto and of Syracuse—by land, respectively one hundred and 150 miles distant. What a travesty upon efficiency!

For the moment however we are seeing the question, not in fine, but in large. It is terribly large, terribly wasteful, if you please. For not only is our steam locomotive a laggard in his over-greed for food but he is lazy into the bargain. A fearful proportion of his time he spends in resting or in being refitted for his work. For each hour that he spends out upon the line he spends another hour in the roundhouse—and this of course quite outside of the yearly visit to the shops for complete overhauling and repair. The traffic of Fifth Avenue, New York, or Michigan Avenue, Chicago, would never move if motor-cars were permitted to park alongside their busy curbs. One reason why the traffic upon our railroads has not moved better in times of stress is because there has been too much parking both of locomotives and of cars, particularly of the first.

An Eastern trunk-line railroad which a dozen years ago was having a fearful time moving its freight brought in a consulting engineer for an opinion as to the increase of its facilities. Like most engineers the outside expert saw the problem as a field-day possibility for contracting concerns—and engineers. A new classification-yard here, great additions and rearrangements to others there, at other places a long stretch of additional main-line trackage—the trick might be done anywhere from sixty to one hundred millions of dollars there in yester-year.

These figures staggered the president of the road. He was not satisfied and so turned again for outside consultation, this time with the hard-headed general manager of a Western line.

"Tell me what you can make of it?" he asked.

The Westerner took a hurried trip over the line and had his report ready within sixty minutes thereafter; it was short, concise, verbal.

"Give me a couple of million dollars' worth of more locomotives and in a week I'll have your problem solved. You don't want more yards, to be clogged up in turn. You want yard shortage—and line movement. If you have a sufficiency of motive-power you won't need many yards, not as many as you have to-day. Your stuff will keep moving, not hanging around on side-tracks."

The problem of that Eastern road of a dozen years ago is to-day that of virtually every trunk-line of the Northeast. Remember, if you will, that for more than a decade there has been no main line trackage laid down east of Pittsburg or Cleveland. Previous to that time a considerable amount of relief work had been done by a half-dozen or so of the larger roads in that territory. But the relief that these changes gave has long since been swallowed up until to-day it is hardly apparent. And the steadily growing traffic demands fresh relief.

How it can be given is not as easy a problem to the big engineers. The Pennsylvania can and has planned still more low-grade relief-lines across and through the Alleghany Mountains, but Pittsburg still remains its bottle-neck—in there between the high hills and all but defying the railroad engineers. The New York Central needs more main-line trackage, but far more does it need relief of its own bottle-necks—at Albany and again at Buffalo. It is the problem of the cities that counts—not merely Albany or Buffalo or Pittsburg, but New York and Boston and Philadelphia and Baltimore and Cleveland and Cincinnati and St. Louis and Chicago. There is no use in lay-

ing down additional main tracks when the terminals in the hearts of these great cities are so sadly congested as to take a freight-car as long to move through a single one of them as from three hundred to five hundred miles on open line.

The smooth and shiny steel rails that slip through each of these congested traffic-hubs are their Fifth Avenues and their Michigan Avenues too. We do not permit the gasoline locomotive to park and obstruct these highways of asphaltum. But the laggard steam locomotive is permitted to loaf in great roundhouses along the steel highway. He is to-day not merely a laggard but an actual obstructionist. I hinted but a moment ago at the time he must spend between runs resting and being more or less overhauled—fires cleaned, machinery overhauled, flues caked and the like, twelve hours out of each twenty-four. Moreover he requires water each seventy-five miles and a fresh supply of coal each 150.

On the other hand, take the electric locomotive. Not only does he save weight by carrying no coal or water and so put that weight into motive machinery—his strength to-day is 7000 horse-power as against but about 3000 of our largest steam locomotives—but he actually goes 5000 miles without having to receive the inspection attention that his old-fashioned steam brother apparently has to have at the end of 150. Which means that for days at a time—and even a week or a fortnight, if the necessity arises—he can remain in steady service, going from one train to another, and only changing crews. The locomotive is always ready.

And what is true in this comparison of the “front shop” light repairs and overhauling, which the steam locomotive must undergo at the end of each division, is still more true of that fortnight in the “back shop”—the heavier repairs and more thorough overhauling that it must have each twelvemonth, if it is to be kept in anything like a decent condition of efficiency. The steam locomotive must go to the “back shop” at the end of 75,000 miles. Barring accidents the electric locomotive need never go there. Its only ordinary repairs are the remov-

ing of worn bearings or the occasional rewinding of an armature, which can be easily accomplished in any small shop of a division-point. The elaborate plants of roundhouses, coal and water stations, turntables, cinder-pits, and sizable shops required every hundred or hundred and fifty miles along the lines of a steam railroad disappear, while with the facility of the electric locomotive for long-continued running the division-points themselves may well disappear.

The New York Central railroad in its 440 miles between New York and Buffalo, using steam locomotives for 410 miles of this distance, for many years made three engine-changes upon the one-way run; recently it has done somewhat better than this. The Erie and the Lackawanna between these same cities make the same number of engine-changes. So do the Baltimore and Ohio and the Pennsylvania between New York and Pittsburg, only a slightly longer distance. This is standard steam railroad practice. It is only recently being changed. If these lines used electric locomotives the engines could easily make this entire stretch—with a possible change or two of engine-crews but not of locomotives—and at a vast saving of time, trouble, and money.

These statements are not made idly. This particular one is made upon the authority of the president of the Chicago, Milwaukee, and St. Paul railway, which has successfully undertaken the longest and most scientific electrification yet introduced in the United States. His name is H. E. Byram, and the main line of his road is to-day completely equipped for electric operation for 649 miles—from Harlowton, Montana, to Avery, Idaho, 438 miles (or about the same mileage as the New York Central's between New York and Buffalo or the Pennsylvania's between New York and Pittsburg) and again from Othello to Tacoma, Washington, 211 miles.

"We regularly run our electric locomotive the entire 438 miles between Harlowton and Avery on the same passenger-train," says Mr. Byram, "and if the track were electrified for that distance could just as well run it four thousand miles.

In fact, counting in attendance, wear and tear, shop capacity, and the like, we figure that one of our electric locomotives is equal to three of the heaviest steam type."

The forty-five electric locomotives now in service on the Harlowton-Avery section—the first to be installed—actually have replaced the 120 steam locomotives that formerly were needed for it. The power for this section, crossing the high ranges of the Rockies, as well as for the newer section further to the west, which crosses the Cascades, is supplied entirely by water. The fuel saving in 650 miles of just an ordinary busy single-tracked main-line railroad in a twelvemonth—259,000 tons of coal and 31,700,000 gallons of fuel-oil, according to its careful estimates for a single typical year—is considerable. When you come to project these to the busy double-tracked and triple-tracked and four-tracked railroads of our Eastern territory you begin to have the great savings which I outlined toward the beginning of this chapter. And these were only predicated upon the use of coal in the power-houses which becomes quite naturally part and parcel of any scheme of electrification.

Consider the Milwaukee's important experiment in somewhat greater detail. It has been loath to give out exact figures as to its savings in dollars and cents by its electric installation until a number of years of operation should determine these beyond a point of quibbling or of argument. Some of its economies are quite obvious however. I am not going into the remarkable system of "regenerative braking" under which in the course of a year some 60 per cent. of the current taken from the overhead trolley-wire by the road's electric locomotives is returned to that thread of copper by the seemingly simple expedient of turning the locomotive's motor into a dynamo momentarily and so utilizing the ancient force of gravity upon a descending mountain grade as to actually turn out electric current and return it to the unseen treasury through that connecting medium of a copper wire. It is enough to say that a 60 per cent. return of current is an appreciable

amount. If you do not believe this, ask the next trolleyman that you meet what it would mean to his road if 60 per cent. of the coal which his power-houses have reduced to ashes could be returned to good coal again—and an infinite saving made upon brake-shoes into the bargain.

These things have been told. But there has not been told publicly before this time a comparison of operating costs between the Missoula division—half of the Harlowton-Avery electrified section of the Milwaukee—and an adjacent mountain division which in 1918 and 1919 was not electrified, and which moreover is not subjected to the extremely hard winters of the Missoula range. The cost of locomotive repairs for 1918 and 1919 on this steam division was two and one-third times as great as upon the electric, owing in no small degree to the fact that the electric locomotive handles heavier trains and at higher speed than the steam, yet, notwithstanding this increased capacity, has a much lower maintenance cost per mile run. The cost of train crews was nearly two and one-half times greater on the steam division than upon the electric—this also because of the greater train tonnage and speed under electric operation. The expense for enginemen for similar reasons was 55 to 60 per cent. greater on the steam operation.

It is easy enough to talk in generalities, much harder sometimes to come to the brass tacks of a situation. It is a sort of brass tack, is n't it, when on this steam division of the Milwaukee, the engine-house expense was two and one-half times greater than upon the electric—and for reasons that we have already seen? We do not need the exact dollars and cents of saving, when these comparisons are placed before us.

Neither do we need exact dollars and cents when we come east to the important electrification of the coal-carrying Norfolk and Western through the Blue Ridge Mountains of West Virginia—a tremendously busy thirty-mile stretch of line over which there constantly moves a vast tonnage of bituminous coal. Conditions here are considerably different from those

upon the Milwaukee yet the results that are being attained are largely the same. Upon the N. & W. huge trains of one-hundred-ton steel cars (3250 tons to the train), which formerly required three big steam Mallets, are now being hauled by two articulated electric locomotives, and at twice the speed.

Focus your attention upon this last statement and then remember what we were saying about the necessity of keeping the motor-cars moving constantly and uniformly through the busiest streets of our metropolitan cities. It is not any more necessary to the understanding of the real economics of railroad electrification to know that the Norfolk and Western has made twelve double electric locomotives do the work of thirty-three steam Mallets than it is to know that those great mountain-climbing trains are moving at the rate of fourteen miles an hour instead of but seven as formerly. Here is speed; but speed expressed in a double dimension—speed compounded if you choose to put it that way.

While there also arises the interesting further proposition that in any railroad of high traffic density it is intensely important that its trains be kept moving at a uniform speed. In other days the freight movement at seven miles an hour through the thirty-mile heavy grade mountain section of the Norfolk and Western tended to "drag the line" and hold back the trains behind it, despite the fact that upon these more level sections their steam power could easily draw them at fourteen miles an hour. But never without a free clearance. That thirty-mile summit section was indeed a clog to the efficient operation of the line. Electricity removed the clog. And, quite incidentally, the soft-coal smoke in a very dirty tunnel through the crest of the Blue Ridge.

Take such speed, such even traffic flow, and apply it to our overburdened trunk-lines of the Northeast; to make the most definite instance and the greatest necessity. Suppose that no more main-line tracks need be laid upon the railroads east from Chicago and St. Louis, north from Washington and Cincinnati, no more expensive notchings in the mountains that hem in

Pittsburg or fresh expenditures in Buffalo, if but a far quickened movement of freight can be obtained over existing rails. Here then is a double economy effected not alone in the use of fuel (still leaving the water-power solution in abeyance) but in a greatly bettered use of existing terminals and track-age. If our railroads can save three quarters of a billion dollars a year by burning their coal and oil in central power-stations instead of in locomotive fire-boxes, it may be fair to say that the terminal economies that might be effected by increasing the existing facilities from 40 to 50 per cent. without physical enlargement would equal the first saving. When the shoe begins to pinch there is many and many a way of relieving the foot.

There are railroaders, and shrewd railroaders too, who will not chime in rapidly. Here is one of them—in the Far West, a mighty operating executive schooled years ago by one of the half-dozen of the real captains of the industry. He feels the need of great relief to the traffic pressure upon his own great system—the greater need of a smoother movement of the traffic upon its rails.

“The game,” he says, “is simplicity itself. It is to take the friction out of the pipe and at the same time increase the pressure.”

Which in his case means a combination of more freight-cars—or better loading of the existing equipment—and more second or double tracks across the long reaches of the West. Yet when I suggest electrification as a method for the removal of pipe friction, he shakes his head sadly.

“My old chief,” he begins, his loyalty showing in his very phrasing, “once thought as you now think. He was anxious to install electric motive-power upon the stiff grades of our mountain division. He had reports made upon the possibility of the thing from three separate sources, the two big electrical equipment companies and our own fairly expert corp of engineers. There was little variance between the reports of these

different interests. Almost uniformly they figured the cost of the job at a little more than ten million dollars, or at that time about \$550,000 annual interest. A fuel bill on the volume of traffic that we then had of about \$300,000 would be saved. That sort of saving did not appeal to me. I told the chief so."

I asked this big railroader how about that mountain division of his to-day, with its traffic greatly increased and its fuel bill more than doubled. He replied by saying that not only had the cost of electrical equipment—locomotives, dynamos, copper wire, all the rest of it—doubled or more than doubled, but the interest cost of getting money has increased all the way from 25 to 33 per cent. And so the wide margin of more than a decade ago has not narrowed perceptibly.

I have introduced this point here because it is most fair and most germane. Unquestionably that paper saving of all the way from a billion and a half to two billion dollars a year that we have just seen would be greatly cut down by the increase in the cost of electrical equipment and of the interest on the money that would go to buy it, but to-day the margin upon the electrification side of the argument is growing wider day by day, while as we go east and the congestion problem upon our railroads increases the margin in favor of electrical operation also increases. Granted that the costs of electrification are indeed vast, with dynamo units running all the way from one million to five million dollars, with locomotives at \$175,000 and upwards apiece, all the other accessories in proportion, the game is indeed worth the candle.

Nor is it always necessary to buy locomotives at the rate of four or even five for a million dollars, with interest rates at 8 per cent. or thereabouts, when a railroad can borrow at all. There is many and many a short cut toward electrification. Take New England, for instance.

Up in that extreme northeastern corner of this land, as we have seen already at some length, the railroad shoe already has begun to pinch very hard indeed. With a few exceptions the

railroads there are bankrupt, or virtually so. And yet their economic need and opportunity in electrical installation was never greater than it is at this very moment. If you don't believe this bald statement, imagine yourself the president of that formerly prosperous little railroad down in Maine and your purchasing-agent coming in and telling you that he just paid twenty-seven dollars a ton for tender coal for your locomotives—with Maine richer in undeveloped water-power than almost any other State in the Union!

New England needs electrification of her steam railroads, and needs it at once. It is no new story to her. She began her experimentation with this sort of development more than two decades ago, when the New Haven laid that third rail alongside its busy Bristol-New Britain-Hartford line and installed a frequent electric suburban service. It was a beginning; a beginning that led slowly but surely to overhead wire installations upon several other branch lines of the New Haven system and eventually to the elaborate work in connection with the New York Central's electrification of the Grand Central Station in New York. This last embraced the entire main line from Forty-second Street through to New Haven. It now ends there. And when you talk electrification to one of the high officers of the road he will point to this particularly elaborate installation and say:

“Not on your life. We had your vision fifteen years ago, and we put in this pretty job. Where did it get us? Into debt. It is one of the finest installations in the world, and one of the most expensive. While the increased capacity of the Grand Central Station from the operation of a two-level plan—a scheme utterly impossible under the use of steam as a motive-power—undoubtedly justified the expenditure, the fact remains that, considered independently, our electric zone to-day does not return interest on its investment. Of two locomotives of equal capacity, the steam one will cost \$45,000, the electric \$150,000. In addition to all of this investment in overhead there is also the cost of its maintenance, and that is not small.

Wire-trains for immediate repairs as well as for maintenance must be in readiness day and night with a variety of expert, and expensive, workers. It all costs."

I know that it costs, Mr. New Haven. But I also know that it takes but one half the amount of coal to pull a train with an electric locomotive as compared with a steam locomotive of the same capacity. Remember that the steam locomotive's voracious appetite for coal apparently is unceasing. He may stand idle and upon sidings for half or a third of a working day, yet the fireman's task at the fire-box door is steady. While if that fireman be lacking in every-day efficiency, the coal waste is increased, not lessened. The president of a large Eastern railroad has estimated that even a little better handling of the coal-shovels by his firemen would save the road 500,000 tons of coal annually. For even if coal must drive a railroad, if that railroad is driven from a central power-station there is almost no inefficiency in firing there; the central station operates on hourly coal-record sheets and waste is quickly detected.

I have not had in mind, however, for immediate use in New England the sort of elaborate installation which the New Haven has upon the western end of its main stem. What I meant for that road, as well as for sections of other lines up there, was the same sort of comparatively simple electric construction that the New Haven itself has operated for years on some of its isolated suburban lines in Connecticut and Massachusetts. I mean, instead of heavy steel passenger-coaches of main-line standards of size and weight and propelled by expensive electric locomotives, electric motor-cars of comparatively small size and weight, self-propelled and self-contained and operated in trains of from one to twelve cars in accordance with the immediate necessities of the traffic at hand. The New Haven's field south of Boston, where its suburban service is at its very worst to-day, is particularly ripe for installation of that sort. There the once competitive interurban tradition has come to its final slough of despond.

The traction systems throughout all New England have not been immune from the difficulties that have beset their brethren in other sections of the land. In fact I should not hesitate to say that their troubles have been greater rather than less than their brethren's. More traction mileage has probably been abandoned in New England than in any other distinctive single locality. From Plymouth to Sagamore, Massachusetts, there stretch twenty miles of track and trolley-wire which, like the Hampden railroad (once built by one Charles S. Mellen for a dozen miles east of Springfield), never has been used and probably never will be. Two years ago the Bay State's lines in and around Gloucester and the Cape Ann district were all abandoned, while the Connecticut Co. (a New Haven property) constantly threatened to do the same thing in some of its larger cities if jitney competition were not withdrawn. A prompt compliance by the local authorities with this mandate saved these towns their trolley service, temporarily at least. It is a grave question whether fifteen years hence we shall have any trolley service in most of our American towns of less than 100,000 population. But the most important abandonment of long-distance trolley service which has come to my attention has been that of the Shore Line Electric, along the north shore of Long Island Sound, for sixty miles between New Haven and New London.

There have been serious deletions in the passenger transportation machine of New England. The causes that have led to them are many and too involved to be discussed here. The main fact is that virtually none of this trolley mileage, outside of the city systems, is ever likely to come back into use again. A good deal of it should not have been built but, having been built, has become both a convenience and a necessity to the territory which it served and its abandonment a distinct social and commercial blow to that territory.

It so happens too that there is a vast amount of surplus mileage in the form of branch lines and even of some of the secondary main lines upon the steam railroads of New England.

And some of this in turn became unprofitable only when it was paralleled by a trolley-line, which quickly changed the situation from one wherein a territory sustained a single thriftily operated line to one where two hotly competing lines could hardly fail both to lose. Now the opportunity is beginning to show itself for a change toward old conditions.

It ought to be and is possible for the New Haven, the Boston and Maine, and some of the other railroads of New England to transform some of their secondary lines into inexpensive combined freight and passenger roads, using steam, if need be, for their freight service and electricity for their passenger.

What I meant for the New Haven, as well as the other New England roads, was the same sort of simple installation that was operated for many years, and apparently operated successfully, on some of the suburban lines east of Hartford, between Middletown and Berlin Junction, Connecticut, between Providence, Warren, and Fall River, and in the summer months out to Nantasket Beach beyond Boston. I meant cars of comparatively small size and weight and self-propelled, depending upon no locomotive whatever. This field south of Boston, where the New Haven's suburban service is at its very worst, is ripe for installation of that sort, through as far as Plymouth at least, and possibly to New Bedford, Newport, and Providence as well.

To the Boston and Maine the zone of suburban lines of the one-time Eastern railroad from North Station out to Salem, Gloucester, and up to Newburyport and Portsmouth offers similar immediate opportunity. Here are lines on which a minimum of through traffic is being routed to-day and most of that could, if necessary, be taken off and placed on the more direct main lines of the original Boston and Maine, just to the west, and leading direct through to Portland and the north. They thread the territory where the interurban lines are dying most rapidly and being totally abandoned, and where a great public inconvenience is arising as a result.

A further result, and one not to be underestimated, would be the vast saving in the capacity of the North Station, just as the New Haven and the Boston and Albany can make a similar vast saving in South Station. A regular interval service, increased during rush-hours, of multiple-unit cars means no switching service whatsoever. An incoming train discharges its passengers upon one side and receives others for the outgoing run on the other side, while it stands upon a single pair of rails and without an unnecessary movement of any sort, which means, in effect, the virtual doubling of a station's capacity.

The New England lines are this very day short—wofully short—of steam locomotives. Yet the immediate installation of electric overhead wires upon some of their congested branches would within a short space of time release dozens of locomotives which, if not efficient for the movement of long or heavy freights, could move shorter ones; after which could come the heavier installations.

"All right say for Berkshire County, Massachusetts," you interrupt, "but how about the southeastern corner of New England? Haven't the rivers down there in Rhode Island all the load they can carry?"

Granted. I indulge in no such wild day-dreams as that of all the railroad trackage of southern New England being operated by water-generated electric power. There is a better plan in view. Before me lies the rough prospectus of the super-power plan of the Northeast Atlantic seaboard, for the surveys of which Congress has already made generous appropriations. In a word this plan provides that in a great congested industrial area consisting of Massachusetts, Connecticut, Rhode Island, southeastern New York, eastern Pennsylvania, and portions of New Jersey and of Maryland a present consumption of 17,000,000 horse-power—divided into 10,000,000 for industrial purposes and 7,000,000 for railroad—shall be fully met by the consolidation and connection, through high-voltage transmission lines, of existing steam-electric stations

as well as by the establishment of central power-plants at the mine-heads of Pennsylvania and West Virginia, these last with a capacity of but 5,500,000 horse-power and yet helping to meet the present need for 17,000,000.

These are but the coal sources of electrical energy; and I have just stressed the importance of the steadily decreasing coal supply and a consequent steady increase in the price of coal itself. Even the vast and sweeping economies to be gained by the consolidation of steam power-stations as well as by the burning of coal at the mine-head are almost as nothing compared with those to be gained by a scientific grouping and use of the available and little used water-powers of the territory. It is upon this very phase of the situation that the super-power plan gains its greatest value. Do you recall how but a moment ago we saw that the operating economies of the Milwaukee out in the Rocky Mountains were based largely upon the use of water-power rather than upon the consumption of coal in its electric power-houses?

The hydro-electric resources of the super-power territory that have not been developed to their full capacity, if at all, comprise power-sites in the Adirondacks; along the Hudson, the Raquette, and the Black rivers; along the upper reaches of the Delaware and the lower ones of the Susquehanna and last—and greatest—that of the St. Lawrence River itself, taken just below Ogdensburg, New York. This last part of the project ties up very closely with the St. Lawrence Ship Canal project, an international scheme in which the United States and Canada shall share the cost and the benefits, both in power and in enlarged water traffic possibilities. It is estimated that more than 1,400,000 horse-power can be generated in this plan, of which one-half would be available for the use of this country. At present the whole St. Lawrence River canal scheme is under bitter political attack, which renders it unlikely that it will come quickly into effect. That it will not come eventually is hard to believe.

When all is said and done, however, this super-power plan, so sweeping as to be all but staggering to the imagination, and yet sponsored by the shrewdest and most far-seeing of American engineers, is based primarily upon the consumption of coal at the mines rather than in distant factory engine-rooms, central power-stations, or locomotive boilers. It is estimated that it can be operated at a saving of at least 30,000,000 tons of coal each year to the industries and railroads of the district which it embraces, or, at a modest average of eight dollars a ton of coal, \$240,000,000 a year to commercial America. Shimmery copper wires will carry silently and continuously what will amount to at least one half of the coal tonnage not carried by the railroads for power and lighting purposes. A copper wire knows neither snow, blockade, nor traffic congestion. And railroad experts estimate the super-power plan as a saving of another \$150,000,000 annually in coal freights. A total of more than a million dollars a day saved in just one corner of American industry is not to be sneezed at, even in these days when we talk so easily and carelessly in billions.

In this great single super-economy the railroads of eastern New York, Pennsylvania, Maryland, southern New England, and northern New Jersey may easily share. In fact it is definitely planned that they shall share in it. The list of feasible users of this concentrated power includes the Fitchburg division of the Boston and Maine, all the way from Boston to Rotterdam Junction, New York (oddly enough the western half of this division, from Greenfield to Rotterdam, through the Hoosac tunnel, 104 miles, has for some time since been marked for electrification by the road's own engineers); the connecting Delaware and Hudson from Mechanicsville, New York, to Wilkes-Barre, Pennsylvania; the New York, New Haven, and Hartford from the present terminal of the electric zone at New Haven through to Boston, both by the Shore line and the Springfield line (this predicates of course the electrical operation of the Boston and Albany all the way east

of Springfield—and why not west of that point also is not easily discovered); the main line of the Erie, from Jersey City to Susquehanna, Pennsylvania; the Lackawanna, from Hoboken to Elmira; the Lehigh Valley from New York to Wilkes-Barre; the Central Railroad of New Jersey-Reading-Baltimore and Ohio group to Washington, to Hagerstown, Maryland, and to Gettysburg, Pennsylvania; the Pennsylvania, from New York to a point just beyond Harrisburg—all of these main lines and a host of their branches. Such is the railroad portion of this embracing scheme. The only important road in its territory that is omitted from the electric program is the New York Central, which has such low grades and hence such economical use of power that the economy of electricity is least necessary to it. If ever it should desire to coöperate in the plan, it probably can gain the power for its main line—west of Albany, at least—from Niagara Falls, and for its network of busy lines in northern New York from the abundant water-powers of the Adirondack preserve or the huge St. Lawrence River international power project.

This all seems most logical. In the case of New England it so happens that the super-power plan—which is now seemingly certain of eventual execution—embraces just that section of the territory where there is the least surplus of water-power. The rough, wild rivers of the north of Maine, of New Hampshire, and of Vermont can and yet will operate almost all of the mileage of the railroads of those States; the distant mines in the Pennsylvania and the West Virginia hills will run the lines in the rest of New England. Power—power to move railroads—will cease to move across the most congested strip of North Atlantic seaboard in noisy and overcrowded and inefficient car-loads of coal. Power will come on the copper wire and will move the silent trains around Boston, New York, and Philadelphia—and many of them—some of them with big and efficient locomotives and others by sturdy small individual motors set within the car-trucks. The steam loco-

motive in this northeastern territory is nearly doomed. I think that eventually it will be doomed everywhere within the United States (our disappearing coal supply will be the chief factor in this), but first and foremost of all in the great congested areas which, having no coal of their own, live in constant and deadly fear that an overworked and overgrown railroad structure may yet fail to bring to them all that they need for their imminent necessities.

That such a step will bring eventual economies, vast economies, one can have no doubt. The New Haven for the nonce may be failing to make a profit on its elaborately electrified main line between New York and New Haven, to the power-station of which it must haul coal a long way and over congested rail routes. But with that unseen power stretched further and further upon its lines I have no doubt that adequate transportation service, freight and passenger, can again be given to the communities which it serves. What is true of the New Haven is equally true of the Albany, the Boston and Maine, and the other railroads of the New England area—after all, railroads of real inherent strength despite the great abuses which they have suffered. And what is true of all these railroads of New England is of course true of the railroads elsewhere within the nation, and true even if the economy be but the one of coal or oil consumption in a central power-station; far more true of course if water-developed electricity be found available. For notwithstanding the great developments of our water-powers that have been made in the last fifteen or twenty years, the experts of the geological survey down at Washington say that the undeveloped water-power of the United States is still approximately 54,000,000 horsepower. Much of this is of course in the West and the Far West where there is as yet but little traffic congestion upon the railroads. In such cases the gasolene-unit cars are oft-times the best solution of the problem of the local passenger service.

There are instances too in the Northeast where single units are still the best solution of this most perplexing transport problem. And in the Northeast there is a considerable proportion of undeveloped water-power still remaining. But whether this be drawn upon chiefly, or the coal at the mine-head, the engineers of the super-power zone plan eventually will decide; the fact remains that here in a strip beginning at Washington and ending at Portland, Maine, and stretching from one hundred to one hundred and fifty miles inland, is the scene of our greatest railroad congestion, and the scene where in any traffic crisis the possibility of breakdown becomes most imminent. Yet across this strip and through it the laggard steam locomotive still continues to draw long trains of coal—with 20 per cent. of it destined for his fire-box and the fire-boxes of his fellows. And this in an era which we have been pleased to call the age of electricity!

No matter from what angle one may view them, the possibilities of a far wider extension of electric motive-power on our railroads are fascinating indeed. Nor are they in this day and age to be regarded as particularly radical or revolutionary, or new and untried. Remember all the while, if you will, that the first important electrification of a section of standard steam railroad in this country—the Mount Royal tunnel section of the Baltimore and Ohio railroad through the heart of Baltimore—was nearly thirty years ago. Since that day a good many other like experiments, large and small, have followed in its wake. Other lands have both followed and preceded us. These other lands are not asleep to-day. Despite the terribly crippled condition of Europe to-day, elaborate plans are being made over there—particularly in France, in Switzerland, and in Great Britain, and even in Spain and in Italy. The British plans are still quite vague. The French are more definite. It is now planned to electrify at least 6000 miles of the 26,500 miles of French railway; a single system, the Paris-Orleans, has made definite preparations for bringing

this power, the most of it water-generated, to more than half of its mileage, about 3250 miles all-told. In Switzerland work is already rapidly under way for transforming the entire Federal system of railways, approximately 1900 miles, from steam to electric power. It is to be a huge job, the cost of which is roughly estimated at \$200,000,000. Little Switzerland shows great pluck in even tackling it. But when you ask the managers of their railways why they are undertaking it they shrug their shoulders and smile and reply:

"Think of the economies that it will bring us."

Think of the economies it will bring us, us Americans. If a thing is good for a little republic overseas with but 3300 miles of rail trackage all told, how much better must it be for the big republic with 265,000 miles of line? Have the French or the Swiss railroaders more vision than we Americans have? I should hate to say that, particularly in the face of such a development as that of the Milwaukee, to say nothing of our great terminals in New York, in Philadelphia, and elsewhere. Have they more funds with which to tinker and to experiment? Of course not.

We have the vision. We have the money. We simply need the correlating force that shall join the two in the immediate relief of our sadly wobbling railroad situation. Such a force would be big business in the truest and the finest sense of the word. It would be something more; it would be statesmanship, railroad statesmanship if you please, railroad statesmanship of the sort that we stand so sorely in need of to-day.

CHAPTER IX

MORE ABOUT ELECTRIC MOTIVE-POWER

WE have the courage. We have the money. And we have the opportunity. And lest any reader of this book should begin to fancy that I have studied the problem of the Northeast alone and neglected the equally fascinating ones of the rest of the land, the many, many places where electric power can and should be brought to the aid of the heavy-traction railroad, permit me in turn to direct attention to the possibilities of several typically congested American communities, in other portions of the land. Yet before we come to these to tarry a moment in metropolitan New York, where the largest installation of electric traction for suburban services in the world has been in use for so many years now that New Yorkers have long since ceased even to comment upon it. It is now considerably more than a decade since the huge Grand Central and Pennsylvania terminals were virtually completed and the steam locomotives absolutely abolished from their stately apartments. Upon the near-by lines of the four chief railroads running into these two stations, the New York Central, the New York, New Haven, and Hartford, the Pennsylvania, and the Long Island, electric traction for passenger trains has been universally installed for a radius of about thirty miles outside of the heart of Manhattan Island. Freight trains of these roads hauled by steam locomotives still penetrate into New York City, but never into these two passenger terminals; while the through passenger-trains of these four roads, as well as of the Baltimore and Ohio and the Lehigh Valley, which use the Pennsyl-

vania Station, interchange their steam locomotives at the edge of the electric zone with electric motive-power. The suburban trains are, of course, made up of multiple-unit cars, like those of the subways or the elevated railroads, and dispense altogether with locomotives of any sort.

To the terminals of the Erie and the Lackawanna railroads, which are situated upon the west bank of the Hudson River directly across from the lower portions of Manhattan Island, the Hudson and Manhattan tubes, built by the vision and daring of one William G. McAdoo, whom already we have encountered in these pages, give access. The tubes also reach the old passenger-station of the Pennsylvania in Jersey City, which is still used to a moderate extent, and continue west to the main line of the Pennsylvania at Manhattan Transfer and into the heart of Newark, eight miles distant. Already they are overcrowded, particularly in rush hours; and it does not take a very great deal of vision to perceive that eventually they will have to be extended at least two miles as a subway under Broad Street, Newark, from the present rather unsatisfactory terminal at the Military Park, in that city.

The facilities are not good for reaching the trains of the Erie and the Lackawanna from those of the tubes; particularly is this true in the case of the ancient Erie terminal, where there is a long and, at times, overcrowded passageway to be traversed afoot between the platforms of the two railroads. In the concluding chapters of this book I am to indicate the regrouping of the railroads that eventually must come about, in one form or another. I may anticipate by saying that in almost any regrouping the financially strong Lackawanna will be linked to the financially weak Erie. Therefore I may be permitted to assume that the lines of these two systems, with an elaborate network of suburban branches in northeastern New Jersey, may yet be joined together somewhere just west of the Bergen tunnels in Hoboken where they now cross at an acute angle. This being done, the rest is easy. One set of tunnels would

be assigned for east-bound movement, the other for west-bound; which arrangement gives four tracks in *each* direction—enough for a really vast passenger traffic movement. Somewhere close to their eastern portals these tunnels would be depressed and continued under the Hudson River to Manhattan Island. Here they would be far apart, perhaps as much as a mile apart. Between them and running north and south upon Manhattan would be a connecting tunnel link ten or twelve or fourteen tracks in width and with long continuous platforms between these tracks. It is easy to surmise that two or three trains could easily lie back of one another at any one of these tenuous underground platforms in the Manhattan terminal. This great sub-service passenger-station would lie somewhere just west of the Seventh Avenue extension and barely north of Canal Street, in Manhattan. It is a district that has not gone ahead with the rest of New York. A huge passenger terminal within it would be of tremendous help in raising its depressed realty values, while the proximity of the station to the main trunk of the West Side subway of the Interborough and the extended Canal Street line of the Brooklyn Rapid Transit would render it wonderfully accessible to every portion of the incorporated City of New York.

One would hardly have expected the virtually bankrupt Erie to accomplish much with the electrification of its lines. As a matter of actual fact, some years ago it accomplished a very successful feat of this sort from Rochester to Mount Morris, New York, a distance of thirty-four miles. The enormously wealthy Lackawanna has done absolutely nothing at all. It has spent money lavishly—and with extreme good sense, as well—in the improvement of its property, nowhere more so than in the New Jersey suburban section close to New York. It has raised or lowered its lines, it has doubled and tripled its main-line trackage, it has built superb passenger and freight-stations at every corner. But it has not tinkered with electric

motive-power. Very recently it has moved so far as to plan an electrification of its main line through a mountainous district for about forty miles east and west of Scranton, Pennsylvania. But apparently it has made no plans whatever for its New York suburban territory. It is hardly likely, with the present management of the road, to say nothing of its interests, direct or indirect, in the large anthracite coal mining properties in northwestern Pennsylvania, to act in anticipation of the coming of the super-power plan and its probable compulsory mandates upon the railroads of its territory.

The super-power plan as we have seen also embraces Baltimore. And Washington, as well. Between these two cities, as well as between Baltimore and Philadelphia, there are two parallel double-tracked railroads. One would serve all real needs, with the possible addition of some stretches of third or even fourth tracks. The other road is quite superfluous.

Years ago there was but one railroad from Philadelphia to Washington—a combination of the Philadelphia, Wilmington, and Baltimore and the Baltimore and Ohio which the Civil War made historic. These two roads connected at Baltimore. The only track connection between them was through Light Street in the commercial heart of that city. Trains arriving at Baltimore on the P. W. & B. had their locomotives detached at Canton Station at the east side of the city, while their cars were drawn one by one by horses across the town to Camden Station upon the west side, where they were reassembled into trains drawn by B. & O. locomotives, and went scurrying off to Washington, the West, and the South generally.

Such a clumsy arrangement could not last forever. About fifty years ago it ended in a first-class row between the two chief parties to it. The P. W. & B. had passed into the hands of the Pennsylvania, which also acquired control of the Northern Central, leading from Baltimore straight north through York and Harrisburg and Williamsport, Pennsylvania, to

Elmira, New York, and so on to the south shore of Lake Ontario. The Northern Central and the P. W. & B. began picking quarrels with the Baltimore & Ohio, which had some very obdurate habits of its own. Things went from bad to worse. For a time the trains of the former connecting roads took a keen delight in missing their connections at Baltimore City (to use the old name of the town), and it all finally came to pass that the roads ceased issuing through tickets over each other's rails—a method of reprisal wherein the traveler paid the bill.

Out of this *mêlée* there grew a phase of competition which developed rapidly into the construction of parallel railroads. The Pennsylvania cut an enormously expensive series of tunnels under Baltimore and built the Union Station out on Charles Street in the newer portion of the town—recently superseded by the present station of that name. From that station it built the Baltimore and Potomac on to its own new terminal in Washington City (also old-style) where it enjoyed valuable exclusive connections with the important railroads leading south from the Potomac. After which it was free and independent of the Baltimore and Ohio for its all-important New York-Philadelphia-Washington business, while the link of the Northern Central between Baltimore and its main line at Harrisburg gave it a chance to get competitive business between both Washington and Baltimore and the West.

To this sharp blow the Baltimore and Ohio retaliated, though slowly. It never was able to finance itself quite as readily as its larger adversary. Gradually it too tunneled under Baltimore—went far ahead of the Pennsylvania, in fact, in that premier electric installation to which I already have referred—and opened its handsome Mount Royal Station within a few blocks of the Union Station. It extended its line on from Mount Royal for ninety-five miles to Philadelphia, paralleling and in sharp competition with the P. W. & B. property of the Pennsylvania. It obtained an advantageous terminal site in

Philadelphia and would have put down its own rails all the way to Jersey City had it not been for a most tragic incident—which has no place in this book. It is enough here to say that eventually it obtained trackage rights from Philadelphia to Jersey City over a combination of certain lines of the Reading and the Central Railroad of New Jersey. Recently, as we have seen, these were so extended as to bring it into the Pennsylvania Station. Railroad competition to-day in a good many parts of the land is not a very serious thing—save, possibly, for publicity purposes.

I have broken my rule and delved into railroad history in this instance for a single purpose, to show how admirably a certain portion of this parallel and largely superfluous railroad construction could be brought to a rapid transit electric installation. For some years past there has been a plan to rid Baltimore of the pressure of through freight traffic through her heart by the construction of a freight cut-off just north of the city, to be used jointly by both the Pennsylvania and the Baltimore and Ohio. Oddly enough the city itself has opposed this plan. Baltimore has a particularly delightful suburban section extending for many miles north of her actual civic limits. It would be quite impossible to build the proposed freight cut-off without intersecting this section. Baltimore is a conservative town. That a bit of her comfort or beauty should be sacrificed to commercial necessity is, in her eyes, unthinkable.

Yet some day that cut-off will be built, if for no other reason than simply because it is a commercial necessity, and the traffic upon the twin sets of tunnels in her heart will be lessened very appreciably.

Now consider those tunnels consolidated—conducted in co-operation and not in rivalry. If the Baltimore and Ohio can use the Pennsylvania passenger-station in New York there is no moral reason why it cannot use the Pennsylvania passenger-station in Baltimore and make a real operating saving.

Baltimore, far more than New York, presents opportunities for the physical connection of the railroads at each side of the city. As a matter of fact there is a connection already at the eastern edge, and none is needed at the western edge. For the scheme that I contemplate would continue the Baltimore and Ohio's through trains over the Pennsylvania tracks to the Union Station in Washington, which already they use jointly.

Now we have a first-class pair of rails left nearly free all the way from Mount Royal Station, Baltimore, to the Union Station, Washington, forty miles distant. The third-rail electric installation of this line which to-day extends for three or four miles of its length through Baltimore could easily be extended to Washington—not only into the Union Station but well beyond it. It would take a lower level of the station, on the side opposite from that occupied by the depressed tracks of the railroads that lead out from and under the station toward the south, and continue as a subway through the heart of Washington to Georgetown and Chevy Chase. Similarly in Baltimore it probably would continue north from Mount Royal, through to Roland Park or even beyond, while between the two cities there has been for many years upon the line of the Baltimore and Ohio an almost unbroken succession of villages, suburban and semi-suburban.

Here then is an ideal opportunity for a dual-city rapid transit development—and, aside from the suggested subway under Washington, to be built at a minimum of cost. An installation such as this awaits only the abandonment of the rather silly show of competition between the railroads, which as we shall see in our own good time in this book is no competition at all, while the opportunities offered for the development of both Washington and Baltimore are too multifold to be set down within many pages.

A similar opportunity is offered through and between the

bustling Great Lake cities of Toledo and Detroit, where the passenger service of the steam railroads that connect them has not been changed or improved in more than forty years. Forty years ago these were small cities; their total population hardly exceeded 166,000 persons. To-day Toledo alone has 250,000 people and Detroit very close to a million. To a population of 1,250,000 people the same steam railroad passenger service is given as was given to but 166,000. True it is that since then the country has passed through the age of the interurban trolley as well as that of the automobile. The traffic by both of these agents of transport between Toledo and Detroit is vast. Yet each is subject to great delays in the streets of these huge and steadily growing cities.

The railroads that render the most direct passenger service between Toledo and Detroit—sixty miles apart—are the single-tracked branches of the Michigan Central and the New York Central running for the most of the way almost side by side. Yet until a very few years ago, no one came along with the sagacity to operate these two single-tracked roads as one double-tracked one, by the simple process of using one line in one direction and the other in the reverse one. The Michigan Central was always a conservative property, and so was the Lake Shore, which preceded the New York Central in this territory.

Yet conservatism, valuable as it is in many ways, should never be permitted to impede progress. And real progress long ago would have dictated the electrification of this intensive stretch of railroad; particularly so in view of the fact that the Michigan Central, a New York Central property, was going ahead with a rather extensive electric installation in connection with the new tunnel that it was boring under the Detroit River and with its elaborate new passenger terminal in that city. For many years the Michigan Central, like the other railroads that essayed to cross into Canada at Detroit, was compelled to ferry its cars and trains across a swift and rather

narrow river. At the best this was a tedious time-taking process. At the worst it was a battle against floating ice and zero weather and all that follows in their trails.

The tunnel obviated this. That much was in its favor. It also obviated the Michigan Central's long-established passenger-station at the river-front in downtown Detroit and—in order to avoid a reverse movement of fast through trains—made it necessary to build the handsome new station in a rather inaccessible part of the town. That much was against the new tunnel.

Yet if the Michigan Central had been possessed of a real vision it might easily have made a complete triumph of the change. Let me show you how it could have been done.

Suppose, if you will, a loop created by the taking over of the Brush Street passenger terminal and approach tracks of the Grand Trunk—so long used by the Detroit branch of the New York Central—and then the Grand Trunk, along with the Canadian Pacific and the Wabash, invited and urged to use the Michigan Central tunnel and passenger-station, at a fair compensation, of course. Then suppose a short length of rapid transit railroad—it probably would be an elevated structure—built along the water-front from the old Michigan Station to the Brush Street Station. Ergo! A complete standard railroad loop has been created threading upon its way the new passenger-station, now transformed into a real union station for all the standard railroads entering Detroit.

Now turn your atlas quickly to the map of Toledo. A similar possibility exists there. The parallel railroads of the Vanderbilts coming in from Detroit sweep around two sides of the town. There is abundant trackage upon the other two sides. A loop has been created, a double-tracked loop, if you please, with an excellent double-tracked link (easily capable of further multiple-tracking) connecting them. The old New York Central Station at Toledo is nearly as badly located in reference to the town as the new Michigan Central one in

Detroit. Yet with this double loop that I have so roughly indicated there could be a constant and high-speed operation of electric multiple-unit rapid transit trains, free from all street traffic interruptions. A man coming into the main passenger terminal of either town from New York or Chicago or any other outlying city, by a swift and easy platform change of cars, could be set down in a few more minutes in virtually any section that he wished to reach.

Electrification! Intensive passenger operation! We have not as yet even scratched the surface of their possibilities. All the way across the country lie development opportunities such as these. There is a rare one in St. Louis—the transformation of the ancient and dirty Eads Bridge over the Mississippi, with the far more dirty tunnel that threads the very heart of the city on the way to the huge Union Station, by changing from the steam locomotive to the electric one, or the multiple-unit train. This done, a rapid transit railroad is established automatically, into two States, from the easternmost part of East St. Louis, across the Eads Bridge, as we have just seen, and through the heart of the town in the tunnel that has threaded it for more than fifty years—what a splendid chance for a big downtown station at Broadway and another under the old post-office!—then out from the tunnel again transversely through the train-shed of the Union Station, out Mill Creek valley along the Wabash right-of-way to the smart West End of St. Louis, through Forest Park and Delmar and branching perhaps off to University City and even far St. Charles. It all is almost as easy and as simple as the nose on your face. While the result on the street traffic of congested downtown St. Louis would be appreciable from the beginning.

The rapid multiplication of the motor-car in the large American city seemingly has brought no larger problem in its wake than this very one of street traffic. In truth the streets of

New Yorks, our St. Louises, our Chicagos, our Philadelphias, and our Bostons were never designed for the operations of fleets of vehicles, each bringing but one or two or three or four persons through them. Two or three years ago I rode through the streets of Detroit with a motor-car manufacturer of international reputation. We were speaking of the grave difficulties, political and economic, with which the local traction company was then laboring.

"We won't see these yellow cars in our Detroit streets eighteen or twenty years hence," he proclaimed quite grandly, with a wave of his hand at them.

I disagreed with him.

"In no city that two decades hence proclaims itself as truly metropolitan," I argued, "can people come to and go from their work in its business heart in their own automobiles—none save the comparative few who can afford the luxury of a chauffeur. Adequate downtown garage facilities for an American city of a million people or more are almost out of the question. For these cities transportation must continue in mass rather than singly. It is not only possible but probable that in many of them the building of subways or the extension of existing ones will yet render possible the cleaning of the surfaces of downtown streets for motor-car traffic exclusively. In which case the trolley merely becomes a sub-surface unit, and continues purely as a civic necessity."

If there were no other argument at all for the development of electric rapid transit installation in the metropolitan areas of our largest cities, this alone would be one well worthy of the considerate ear. The huge interurban trolley-car, so very valuable at one stage of our national progress and development, to-day is an interloper in the streets of even our good-sized towns. Nowhere has this been recognized more keenly than in two important up-state cities of New York—Rochester and Syracuse—where the completion of the new Barge Canal has left the pathway of the abandoned Erie Canal a desolate streak

of muck and mud through their very hearts. Each of these York State towns is to-day a real hub of interurban trolley traffic, to an extent that adds greatly to their existing street congestion. It is now proposed that the old bed of the Erie be adapted and used as a sub-surface terminal and approaches for these heavy interurban cars—a suggestion that now seems quite certain of being put into effect. Both Rochester and Syracuse for a considerable time past have been fretted and perplexed by the amount of room these cars have taken in their streets. Their problem is one that is shared by many and many another ambitious city across the land.

There is a phase of American railroad operation that already I have touched upon and to which I shall again refer—the problem of the small branch line. In a following chapter when we shall discuss at some length the possibilities of the gasoline motor-car as applied to this small but always intensive transport problem, we shall go into the possibilities of this arm of the railroad—to-day its most neglected arm and, in consequence, shriveling terribly. There are many places where the withered arm can be made healthy and strong once more by electric treatment. Let me illustrate.

Here in one of our Northeastern States (yet out of the super-power area) is a line that runs from S—— through W——, a small city of considerable importance as a local metropolis, on to C——, a railroad center, and then up to B——, in the heart of the mountainous forest. For the first twenty-eight miles of its distance, from S—— to C——, this road runs through a fairly closely built industrial territory, where the intermediate towns all but touch one another. Forty years ago this line had four passenger-trains a day in each direction; to-day it has but four once again. There was a little time when it had five or six. The motor-car, privately operated, and the motor-bus, publicly operated, brought it back to four. And even these four are not well filled.

The people in its territory do not particularly like the motor-bus. They use it chiefly because of its frequency of service and the fact that it makes frequent intermediate stops along the line. Both of these factors are possible to that railroad with the installation of a light unit, traveling at frequent intervals. From one end to the other of this sixty-mile line there is abundant water-power. A good engineer of my acquaintance tells me that the whole route could easily be operated on 5,000 horse-power. Ergo, once again. The big and generally well-operated railroad system that owns and operates that little half-hidden branch is missing a good bet—for one reason for being so far removed in real headquarters from the line itself, of which much more in good time. The point is, here and now, the bet *is* being missed and a fair income opportunity lost. An aggregate of these small fair income opportunities would make a considerable dividend upon the stock even of a 12,000-mile railroad.

Across the land there are hundreds of lines such as this, hundreds of such fair income opportunities. We are coming presently to the possibilities of the gasoline motor-car unit in regard to them; yet here and now may I not suggest that if ever we as a nation should come to a serious shortage of our crude-oil supply, upon which such super-demands are being made these days, we shall retain our water-power? This is a point in favor of the electric unit, as opposed to the gasoline or kerosene one, that we hardly can afford to overlook.

CHAPTER X

A CASE FOR THE STEAM LOCOMOTIVE

BUT a moment ago we were calling the steam locomotive upon the American railroad a "laggard." Yet we were reserving a rebuttal to place his case upon the minutes of this record. In all this wild to-do about the possibilities of electricity in heavy rail transport he is forgotten. Such ever must be the fate of a laggard. Yet truth to tell, the steam locomotive does have a case. He can make a real rebuttal. He may be a laggard to-day; but to-morrow—Did you ever chance to know of a boy or a girl in school who was a laggard, and a brilliant success in after life? I myself have known of several.

Moreover it is hardly conceivable even now that all of the mileage of all our railroads ever will be run by electricity. Even the remarkable vision of McAdoo, which viewed the thing with marked friendliness, only predicated its use upon about one fifth of the railroad mileage in the United States. The great inland sections of the country, the plains and the prairies and the broad valleys of the Mississippi and the Missouri and the most of their tributaries, are comparatively limited in available water-power facilities. And this despite such great works as the Keokuk dam and others of the same sort, while the huge distances there militate against the economies of central steam-power stations for the generation of electric current.

So let us temper the wildest fancies with the thought that we probably shall have the steam locomotive with us for some time yet, say for one or two hundred years more. We shall

have to put up with him. And having to put up with him, what shall we do with him? How shall we make him most effective for the future necessities of our American railroad structure? There are more than 67,000 of him upon our railroads to-day. He is a factor in their progress that cannot be ignored. They can ill afford to have him remain a laggard, no matter how brisk may be the inroads of his competitor, the electric locomotive.

The steam railroad of the United States seemingly came to the pinnacle of its efficiency about twelve years ago. The steam locomotive about twelve years ago also reached its apparent ultimate size for any sort of practical operation—120 feet in length and a little over 800,000 pounds in weight. The width and height for many years past have been held by tunnel and other clearances pretty rigidly at ten and fifteen feet respectively. Finally at about 120 feet the practical limit of length also was reached; even then there had been created an engine that not only could not be handled upon the longest of turntables at the terminals, but even upon curves of fairly easy radius. Also the limit of the human fireman, the shoveling of from fifteen to eighteen tons of coal in from four to six continuous hours, had been reached.

These 120-foot locomotives were available only for long and almost straight stretches of track and for use without being turned, while a weight of 400 tons not only represented a real strain upon the bridges but a constant and a fearful pounding upon the very best of track. So here then in 1910 was the seeming height of the development of the American locomotive; a pinnacle scaled in a long endeavor to cut down operating costs to the utmost.

A seeming height it was. Was it in fact the real height of efficiency?

I doubt it.

The 400-ton locomotive was in the main the same locomotive

that George Stephenson had first built and operated away back in 1827; it was but an enlargement of the *Stourbridge Lion* that first had dug his heels into the iron at Honesdale, Pennsylvania, in 1829, and so proclaimed a new era in American civilization. A few things had been added, but they were very few. An engineer out in Sandusky, Ohio, put a bell upon the boiler, George Westinghouse came along about half a century ago with the air-brake, some one else devised the injector, there were some other very minor improvements—and that was all. Aside from these and a few very slight rearrangements of its working parts the American locomotive of 1910 was very much the same, even in appearance, as its ancestor, let us say, of about 1840. Eighty years is a long time. It ought to afford a large opportunity for development. Apparently it has not.

About thirty years ago some clever German engineers first devised a plan for bringing steam from the boiler into the cylinders at such an intense heat that its full energy would not be immediately dissipated upon entering them and the steam partly turned into water. Technically this last is known as “saturated steam.” The superheated steam idea was a good scheme and an apparent economy. Yet it was ten or a dozen years before it penetrated to this side of the Atlantic—to be exact, it was just twenty years ago. I sometimes wonder that it got across even so quickly as that. Our American railroad executives are not as a rule particularly alert to what is being done in transport in other lands. Europe has 14,000 applications of another locomotive improvement which is just coming to be used in our dear old U. S. A. So it goes. If a successful monorail installation were to be made in Patagonia, for instance, your average Yankee railroader would read of it in the columns of his beloved “Railway Age” and then smile patronizingly as he said:

“Very interesting, that. But of course it would n’t do for us.”

Our railroads, which long ago failed to work out any scientific scheme for the compensation of their employees, also failed to make an intelligent or organized study of the mechanical or scientific progress in their field. The United States army has long possessed its "staff"—the extremely competent group of men who, detached from the grind and drill of daily operation or detail, make constant and exhaustive study of every sort of military possibility from the complex mechanism of the newest guns from Krupp or Schneider or Armstrong overseas to the right kind of shoe for the marching soldier. The railroads of this country should have such a "staff." Very few of them have ever even attempted such a forward-looking device. They have been utterly hidebound by their traditions, and in consequence they have suffered.

Contrast this attitude with that of the automobile manufacturers of the country. In a situation that is nothing if not competitive, they have coöperated, almost from the beginning, and almost universally for the betterment of the machine itself. This plant or that, devising and perfecting a new kink for the improvement of the internal combustion or gasolene-engine, has thrown it into the common pot for the benefit of its competitors. I have known an automobile manufacturer to spend months on the perfection of a cylinder-block and then to drive it in mad haste over the Indianapolis Speedway, hour after hour, at more than a hundred miles an hour.

"Why was that necessary?" was the inquiry made of him. "You do not expect your cars to be put through any such grueling test as that?"

He laughed, as he replied:

"No, but some user of this car some day is going to get all but stuck in second speed on some stiff, muddy hill and if the valves act gummy he is going to have it in for this car."

Eventually this manufacturer had the valve working to his taste. When he had perfected it, in keeping with his agreement, he threw the new cylinder-block open for the use of his

fellows. There was no secret about it, no patent; they were quite welcome to use it. And some of them did use it.

More than this, the automotive industry, as it now likes to call itself, is not content to let the individual manufacturer do all the work upon the development of the machine. It has centralized bureaus, technical experts, and engineers who are working all the time for the interests of the industry in general. The development of the marvelous Liberty motor of war days would not have been possible without such a centralized organization.

Such a plan never has been attempted in the history of steam locomotive development. There the individual manufacturers have gone it alone. And they are quite frank when they tell you that there is not the slightest financial inducement for them to carry forward a scientific work of development. Their output is sold generally in quantity lots—like potatoes, by the peck. And in the present-day poverty of many of their customers—comparative poverty at least—they assert that the margin of profit is held to a figure that permits of little or no “staff” work upon their part.

Now remember, if you will, that for eighty years the steam locomotive of the United States grew in size alone. Aside from the air-brake (which, in reality, was not a distinctly *locomotive* improvement) hardly a single fundamental improvement had been made since the days of Stephenson to make a pound of iron and a pound of coal and a pound of water do more work. Yet with our super-sized locomotive reached, the operating geniuses of our American railroads demanded more power, and still more power. The longer train-load, and the heavier, apparently was their only way out of the demands that came down upon them from “higher up” for still more operating economics.

Then slowly and after a very great delay the railroad executives began casting about through their mechanical departments to inquire what, if any, progress was being made in intensive

locomotive improvements, either overseas or else right here in America. The mechanical departments reported quickly. There really were several possibilities. Listed, these ran about as follows:

The superheater: That German device that we have just seen for bringing the steam into the cylinders at such an intense heat as not to permit it quickly to waste itself in water vaporization; a purpose accomplished chiefly by the use of special flues in the boiler through the entire length of which steam is twice passed. That done, it comes into the cylinders superheated, and not saturated as in the old-time engine.

The brick arch in the fire-box: A sort of second cousin to the superheater. Its name to a large degree indicates its nature. An arch thrown across the forward end of the fire-box has a very marked tendency to insure complete combustion of the fuel before the heat reaches the flue-tubes of the boiler and hence achieves a great economy in coal or oil consumption. Its use came with the development of the maximum width of the fire-box in the newest types of American locomotives, which in turn was accomplished when the locomotive had been lengthened and a pair of trailing-wheels placed just back of its drivers.

The feed-water heater: An allied device for quickening the production of boiler steam and so effecting a further economy in coal consumption. Perhaps the least tried and so the least established of all these devices.

The booster: In reality a miniature locomotive, attached to those two trailer-wheels just back of the drivers and giving to the biggest locomotive at its starting-point or other points of real stress the accelerating power equal to that which 50,000 more pounds of additional locomotive would be able to give. Yet the booster is as ingeniously geared from its cylinders to its driving power as the engine of a high-grade automobile and weighs but 3500 pounds all told—a mere nothing in comparison with the energy that it gives off. Its applica-

tion and disconnection are almost automatic. The engineer, when he is in need of its assistance either at starting or upon a steep grade, puts its additional power into play by a quick twist of a tiny lever at his side.

"Humph," interrupted my friend the old railroader out in the West, "I suppose you think that we are going to get engineers of the caliber to handle all these fancy claptraps that you would put upon the engines?"

No, Old Railroader. Not for a minute. We have those engineers already in America; nine out of ten of the men who are handling our locomotives in the United States are quite capable of handling all these devices, and a considerable number in addition. Even overseas where, broadly speaking, the type of individual railroad employee is not supposed to be as high as in this country, the enginemen are to-day used to all these modern devices, the hall-marks of the really modern steam locomotive. A keen-minded American who has known and loved locomotives all his life went over to France not many months ago and rode in the cab of one of those high-speed engines that haul the heavy expresses of the Northern railway from Paris to Calais, 180 miles in three hours and thirty-five minutes—a remarkable daily performance,—and he had his eyes opened. In the first place the cab was immaculate. I might almost add "of course." I rode myself in the cabs of British locomotives after the Armistice. Had there been a war just ended over there across the narrow English Channel? The rolling-stock of the British railways certainly belied that fact. Their locomotives were clean, bright, freshly painted; they were not rusty, dirty, or leaky. They had upkeep, continuous upkeep even through the fifty-one heart-breaking, man-shortage months of the World War. That showed for itself.

The cab of the engine in which my friend rode from the Gare du Nord to the Calais pier was more than immaculate; it was intricate. There were levers here and levers there,

gages high and gages low. It looked more like the control-board of a fair-sized steamship than that of a locomotive. There was a variable exhaust nozzle, a control here, a control there; the locomotive was itself a four-cylinder compound engine with all the improvements that we have just seen (and then some more)—and with 180 miles to be made in 215 minutes, which is faster than almost any American train goes to-day—faster by twenty-five minutes than the fastest train between New York and Baltimore (185 miles); faster by thirty-one minutes than the fastest express between New York and Providence (also 185 miles).

Somewhere between Paris and Amiens the fireman was taken slightly ill. With hardly a word between the two railroaders in the cab they changed places. The fireman stood his intelligent trick at the throttle; for more than an hour the engineer fed the fire-box partly coal and partly briquettes. There was 15 per cent. of briquettes in the tender and a bonus to the engine-crew for any fuel saving that they made upon the run. Moreover the names of the engineer and the fireman, printed upon neat, small, brass plates, were inserted in an especially showy place on each side of the engine-cab—a good deal as Mr. Underwood of the Erie once began naming his best engines after the men who habitually ran them, painting their names in large, conspicuous letters upon the engine-cabs, where in other days locomotives bore the names of presidents, governors, railroad directors, and others who sought a brief temporal glory. The French plan is best in that it permits flexibility in the assignment of the locomotives; the American plan best in that it confers an even greater and more permanent distinction upon the engine-driver. I wish you could see old Harvey Springstead as I saw him about ten years ago on the first day he drove the *Harvey Springstead* into the battered old Erie terminal in Jersey City. Warren G. Harding accepting a lovely sprig of flowers from the prettiest ten-year-old girl in Marion, Ohio, could not have been a prouder man.

When that fleet engine of the Chemin de Fer du Nord (French for the Northern railway) came to its first and final stop out of Paris upon the Calais pier, sixteen men attacked her with brushes and cloths and hammers and wrenches and what else I know not. Yes, sixteen. My friend counted them. And he later found that before the war-times there had been thirty-two. The fleet locomotive had a real inspection, while the little engineer and his fireman repaired to the near-by Café de la Gare and enjoyed their *dejeuner* and their small bottle of wine.

Sixteen men went to that engine! Four would have been a goodly force for the average American roundhouse or terminal shed; and the engine probably would have waited two or three hours for its inspection. One of the crimes against the American locomotive is the lack of care and attention that is given it. Think, if you will, of an engine on one of our first-class railroads being discovered so badly out of order in regard to the setting of its valves that a very few hours of repair work upon them brought an immediate saving of 25 per cent. in its fuel consumption! Is not that being penny-wise and pound-foolish?

I have digressed. And without apology. We were recounting the actual devices for the improvement of the steam locomotive: the superheater, the brick arch, the feed-water heater, the booster. None of these—in their essentials, at least—are patented devices. Any good locomotive builder can use them freely. He only waits the word of the purchaser of the locomotive. Neither is there any patented monopoly in the mechanical stoker. Two or three very good types already are on the market and if you wonder at their efficacy may I again suggest that some good warm summer's day you go down into your own cellar and shovel seventeen tons of coal across it—from one side to the other—in four or five hours. Sleep overnight—if you wish to complete the illusion, preferably on a rough, hard bed—and the next day shovel all the coal back

again, in four or five hours. Then ask yourself, if you were a locomotive fireman would you feel that there was any real need for a mechanical stoker.

There is no monopoly, either, in the plans for substituting more and more light reciprocating locomotive parts of alloy-steel in place of the old-fashioned heavy cumbersome ones that hold their places, almost through tradition alone. Our American locomotive to-day is far too heavy. The automotive industry—the group of men who in real coöperation have perfected almost every detail of the American motor-car—again has pointed the way. If a balanced crank-shaft is valuable to a rubber-tired locomotive upon a concrete highway, should a device of similar ingenuity and value be accounted an impossibility upon the flange-wheeled one of the steel highway? The possibilities of intensive development of the steam locomotive upon these lines alone seemingly are almost infinite. If Henry Ford, with not only the skill and experience of his own marvelously ingenious mechanical mind, but the expert staff that he has always at his elbow, can succeed in bettering the American steam locomotive radically, I think that the American public will be tempted to call him blessed indeed. If Mr. Ford can only succeed in putting better bearings under our railroad-cars his name should be accounted as blessed in our railroad tradition. The axle-bearing of the average railroad-car in this country—particularly the freight rolling-stock—has neither been improved nor changed in more than half a century. It is virtually the same now as it was in 1860—a swabbing of cotton-waste and grease set in a box upon the axle-end, a device forever becoming dry and hot and blazing forth into flame. Contrast such an archaic thing with the axle-bearing of the modern motor-car or motor-truck. Ball-bearings, or, in the case of heavier vehicles, roller-bearings. A Detroit specialty concern installed these on a big Michigan Central box-car not many months ago, and two men pushed the car down a siding with no vast effort.

If these things can be done and have been done, why are they not being done to-day?

The answer is simple: tradition—hide-bound tradition—and cost. If I were to let my friend, the old railroad operator out there in the West, interrupt he would tell me that this last alone renders them quite out of the question. To which I should reply:

“If you were buying an automobile, would you rather have an automobile or a wheelbarrow?”

A few minutes ago we were discussing the electric locomotive in these pages. Without going into detail into its mechanical niceties we said that the average cost of one of these big units to-day is \$150,000 to say nothing of proportionate cost of power-house and wires, without which, of course, it is quite useless. The average cost of the largest-sized steam locomotives to-day is anywhere from \$40,000 to \$75,000, which represents a real drop since the peak prices of the days of the war.

But this is not the point. The point is that the average railroad executive buys the electric locomotive upon the “say-so” of the manufacturer. If it cost \$250,000 and he was convinced in his own mind that it was a necessity to him he would not stagger at the price or attempt petty economies by trying to buy it stripped of every efficiency device.

The average railroad executive does not buy steam locomotives that way. Oh, no. He says:

“Give us ten million dollars’ worth of new engines. I want them good engines, the best engines that you have ever built.” And then adds: “How many do we get to the peck, anyway?”

Quantity, not quality. It is one of our besetting American sins. How much? Not how good. How much? How big a number to be added to the next annual report in order to impress the stockholders? Nothing about refinements. Nothing about quality.

The builder takes down his blue-prints—the same old engine that he has been building for ten, twenty, thirty years past. No staff has worked to perfect that old-fashioned machine. He figures rapidly. His opponents are figuring against him. And finally he shoots in his bid. The railroad can buy a lot of locomotives for ten million dollars; a goodly quantity for one tenth of that figure if it is not too fussy about the details.

After which will you wonder when I say that no steam locomotive in the United States to-day represents anything like the ultimate possibilities of the machine itself? That is not true of the electric locomotive, where the last unit turned out from the shops is almost sure to be the best ever built. Let me illustrate.

It is now a good ten years since a most efficient passenger-locomotive was finished in this country—to turn out one cylinder-horse-power per hour from 16.5 pounds of water and 2.12 pounds of coal and weighing but 121 pounds per cylinder-horse-power. A few years later an equally efficient freight-puller was made, creating one cylinder-horse-power per hour from 15.4 pounds of water and 2.00 pounds of coal and yet weighing but 88.9 pounds per cylinder-horse-power. This was several years ago, please remember. Since then many, many locomotives have been built that were not nearly so good. Some of these have been retired to light service already. Why?

Why are not these engines of 1910 not only being equaled but bettered by the engines of 1922? Why does it ever become necessary to scrap locomotives, within half a century of their construction at any rate? There is not one of their bearing parts that is not capable of infinite replacements, after which, it is a question of mere lubrication.

I saw not many months ago under the train-shed of the passenger-station at Tours, France, a copper-boilered locomotive of the Paris-Orleans railway which bore the date of her

construction, 1857, proudly upon her neat sides. She still was an efficient little locomotive, handling a small job fit for her small size and handling it very well indeed. The oldest locomotive that I personally have known to be in constant service in the United States was an engine belonging to a paper company near Potsdam, New York, which had been built by the Taunton Locomotive Works for the Union Pacific railroad in 1860, and sold to the Central Vermont in the following year. Rebuilt several times, it still was in service in 1919. This engine is very much of an exception. A twenty-year-old engine in this country to-day is a veteran. The famous "999" of the New York Central, which in 1893 was exhibited at the Chicago Fair as the fastest locomotive in the world, in 1903 was handling a "plug" milk-train up in northern New York. It now has been retired as a sort of museum-piece.

Why are our steam locomotives scrapped in this way? Why are they not built universally for their highest possibilities of development? Why are they not given the mechanical refinements that experience has shown well worth while?

Once again: tradition and cost.

The first of these some day is to be eliminated. And as for the second; listen to my friend, the dear old practical railroader out there in the West. I much doubt if he will ever be able to finish reading the preceding paragraphs. But should he succeed in completing them, I anticipate receiving a telegram—a letter never would be prompt or emphatic enough—which will read something after this fashion:

"Now, what are you doing again? Don't you know that to put in all these darn phool [softened to calm the feelings of the telegraph operators] contraptions in our railroading would cost a national debt or two—of the old days? How can the railroads, strapped, without money to-day, go into these things?"

I shall not respond by telegraph. I have no Western Union frank. But I shall sit down and write my good old tempest-

tuous friend that in my own humble and uneconomic opinion the best way to economize is to introduce methods that lead toward economy. When the Lackawanna system spent about \$14,000,000 a few years ago in rebuilding and perfecting about forty miles of its main line between Scranton and Binghamton, it was said by some clever people that only a road as extremely wealthy as it was could go into such frills. Well, last year the operating economies effected to that company by this improvement, and by this improvement alone, came to about 12 per cent. of the expenditure, while the money itself, was obtained at 4 per cent. I should like to ask Mr. Underwood, of the always almost-bankrupt Erie, if that carefully managed property would not have been in receivership and helpless a full decade ago, if it had not been for his great grade revisions on his main line east of Youngstown, Ohio? And Mr. Daniel Willard, of the Baltimore and Ohio if it is not true that the superheaters on but 1000 of that railroad's 1600 locomotives are not already saving it more than 750,000 tons of coal a year?

To save money upon our American railroads it frequently becomes necessary to spend it, and to spend it generously, but always wisely of course.

We measure expenditures properly by the results. An improvement to a locomotive costing as much as \$10,000 to buy and even as much as that to maintain each year is a good investment, is it not, if it saves \$50,000 a year? The superheater, the arch, the booster, and the feed-water heater together vastly increase the power of the steam locomotive. To gain their equivalent in the locomotive itself, the average Mikado-type freight-puller of eight big drivers and with extra length boiler-tubes—nineteen or twenty feet—would have to have not less than fourteen driving-wheels and boiler-tubes of the almost incredible and impracticable length of thirty-six feet. Is that graphic enough for the layman to understand? Can you understand this about the booster alone? Take a

reasonable stretch of level railroad division, say 125 to 175 miles. It is good low-grade line and an engine of even moderate capacity ought to handle a 3000-ton freight-train over it easily, if it were not for that nasty little hill half-way down the line. A chain is no better than its weakest link. A railroad division is no easier than its stiffest hill. This particular one means that the maximum train-load on that division may never exceed 2700 tons.

Now we put the booster on—that little miniature locomotive for the trailing-wheels that we saw a few minutes ago, built like an automobile engine and having the same gritty driving power. When the engineer comes to that nasty hill, in goes the booster and up goes the 3000-ton train over the hill, just as easily apparently as if it were coasting on a down-grade.

The most famous passenger-train to-day in America, if not indeed in the whole world, is the Twentieth Century Limited, running between New York and Chicago, 969 miles in a flat twenty hours. It began twenty years ago as a single train of moderate length—about seven or eight Pullman cars and a diner. To-day it almost always consists of at least two sections, each of ten to twelve heavy steel diners and Pullman sleepers. In figures, the weight increase is close to 216 per cent. The train easily might make the run through to Chicago in eighteen hours as it did at the outset if safety and other conditions permitted. The energy of the locomotive is not the limiting factor.

Now how has this been done? How has the typical locomotive of the Twentieth Century been so improved as to keep the train that it hauls up in the top notch of American passenger carriers? The answer is easy: by the constant application of every proved device for the improvement of that machine. The New York Central, which operates this train, does not often stand convicted of a lack of mechanical progress. Come to figures, once again: A certain well-known railroad, which is thoroughly sold on the idea of the improved

locomotive, in the last twenty-five years has steadily increased its average tonnage per train by from 400 to 1700 tons over the old-time figures. Its maximum is now close to 3200 revenue tons. In this same quarter of a century this railroad shows 233 per cent. increase in the weight of the train and 66 per cent. increase in the average speed. To-day it thinks nothing of hauling a 5000-ton train at a steady rate, uphill and down dale, of twenty-five miles an hour.

Our steam locomotive is a laggard? Only when you do not give it a fair opportunity to show its real worth.

If all our other railroads were as progressive in this as the two that I have just instanced, there would be no reason for this detailed attention to the problem. Unfortunately they are not.

A moment ago I said that two things had held back the development of our steam locomotive—tradition and cost. Have I not now settled the question of cost, as far at least as it may be settled in these pages, by showing the great economies to be effected in the use of an efficient engine—economies, roughly speaking, averaging 25 per cent. in the operation of the locomotive? Now come to the problem of tradition.

The extreme easterly forty-five miles of the main New York-Boston line of the New York, New Haven, and Hartford railroad was, up to thirty-four years ago, a separate railroad, the Boston and Providence, extending between those two cities. From the old Park Station in Boston down to the station in Providence and back again—ninety miles—was a day's work for one of its locomotives. On some of its suburban runs the engines did even less. They were pampered bits of mechanism.

Last year I rode from New York to Cherbourg in the giant steamer *Olympic* and spent many hours in what is the finest engine-room upon all the seven seas. The tireless engines, the

racing shafts, never ceased their impetuous speed for six days and for six nights. If necessary, and if the fuel had been available, they might just as easily run on for twenty-six days and twenty-six nights or even longer. It all comes to proper lubrication and attention, and nothing else.

A twenty-four hour continuous test of an automobile is as nothing; a five hundred or a thousand-mile test of its engine without resting, these days, a mere child's sport. You do not think after you have driven your own car ninety miles that you must rest it before you set it in service once more. If you could not drive it upon necessity twice or three times that distance without resting it you probably would feel like selling it.

Yet there are many ninety-mile engine-runs left in the United States to this day; some of them, like those between New York and Philadelphia, are matters of operating convenience that cannot easily be changed. Tradition holds others. One hundred and fifty miles still remains a typical division in the minds of many conservative railroaders. And a real boast upon the part of the progressive manufacturers of the electric locomotive is that their machines can easily cover two such typical divisions without either rest or inspection. But it should be borne in mind that when the inspection finally is made it must be like that at Calais, of the most thorough sort.

Very recently the New York Central instituted the experiment of combining as a single engine-run the former two runs between Albany and Buffalo, 300 miles. The Santa Fé has cut its separate runs from Chicago to the Pacific coast from twelve to six. There seems to be no very good reason why the New York Central should not run the locomotive from Harmon, at the outer limit of the New York electric zone, right through to Chicago, 946 miles—or two engine-runs on the Santa Fé between Chicago and Los Angeles, 2246 miles. Down in the Southwest the Missouri, Kansas, and

Texas railway already has a 700-mile run, and is preparing to install a 1000-mile one. It is simply a question of proper re-watering and refueling facilities. Obviously the crews could not make runs such as this. I have known an engineer to take a special through from New York to Buffalo on the Lackawanna or the Erie—a little more than 400 miles in either case—and not relinquish the throttle for the entire distance. But that was a stunt. I am talking of regular performance day in and day out.

It is easy enough to change the crews however at distances of approximately 150 to 175 miles. But there is no reason why the engine should be changed. If an 11,000-horse-power ship racing two 250-foot shafts can keep it up continuously for six days and 3000 miles there is no reason on earth why a well-equipped locomotive should falter at the same performance.

The steam locomotive a laggard?

There is no inherent reason whatever why he should be a laggard unless men themselves so desire. The paths for his possible development have not been followed to their ends. Men this very day are engaged in plans for the placing of a third cylinder in his mechanism; the possibilities of the brick arch, the superheater, and the hot-water feed now have brought his steam production up ahead of the mechanism that consumes it. The opportunity is rife for the further perfection of this mechanism.

In England, right up to the present time, and for many of his earlier years in this country, the steam locomotive in builders' phrasing was "inside-connected," the cylinders and driving-rods being placed within the frame and under the boiler. Gradually this type of engine was abandoned upon this continent. Despite the trimness of its appearance—your foreigner always lays great stress upon the appearance of his locomotive—the important driving mechanism was so hidden as to render it comparatively inaccessible for repairs. And

so we came here to placing the entire driving mechanism upon the outside of the locomotive, where it could be easily reached and taken down.

There is a movement to-day toward the creation of a locomotive which shall be both inside and outside-connected. There is hardly room for two cylinders within the frame. There certainly is room for one. And with the retention of the two outer cylinders there presently will be created a locomotive which, with all its improved steam-creating powers to boot, will quickly take highest place both in speed and energy. More operating economies will be effected, new records established.

The steam locomotive a laggard?

Is not the question now fairly answered?

CHAPTER XI

THE GASOLENE-MOTOR UNIT AND ITS POSSIBILITIES

IN the twelve months of 1921 service was abandoned upon 1626 miles of standard steam railroad in the United States—much of it permanently abandoned. Of this, 217 miles, or very slightly less than that of 1920, was not only abandoned, but the track was taken up and the equipment sold. In addition to all of this the various regulatory commissions had authorized the abandonment of 191 more miles of line, and applications were pending for the scrapping of still another 575 miles. Once fairly important roads, such as the Colorado Midland and the Colorado Springs and Cripple Creek (one fourth of the abandoned mileage was within the State of Colorado) and the Missouri and North Arkansas, are included within these totals, while to them are added a host of small railroads, lines twenty-five to forty miles in length or less. Unimportant? Yes, to you and me, when we go hurrying across the country in the Limited, but not infrequently of very large importance to the communities that they aim to serve.

The position of the short-line railroad in our rail transport debacle is even worse than that of his bigger brothers. Even in the prosperous days before our entrance into the World War he was constantly involved in difficulties. Even then the motor-truck was beginning to make serious inroads into his earnings. So wonder not that he hailed the advent of McAdoo and government control as a possibility of real salvation. Yet how false a hope that was was quickly shown when the director-general of the United States Railroad Administra-

tion refused bluntly to bother with these roads—there are close to a thousand of them—in his unified rail transport structure. He said that they were not necessary to the successful prosecution of the war. And that settled it. Nor was this all. The last blow came when, with the reroutings of freight that came as an inevitable result of Federal control, the small railroads across the land began to lose the little hauls that frequently were given them by friendly freight traffic officers. At that many of them quit. More and more of them have been quitting ever since. In a few cases local pride has served to keep them alive; I can think of the Kanona and Prattsburg, a little eleven-mile line up in western New York which to-day is being operated by a group of farmers and village people who already are wondering if it would not be wiser to sell their locomotive and scrap the thin iron link that holds them to the outer world.

Where these little roads are alive they are breathing heavily. The little locomotive, purchased second-hand from the big railroad, which had used it almost up to the point of worthlessness, the battered cars, the bridges and trestles so long suffering from a lack of proper maintenance as to render it positively unsafe to run heavy cars over them, all are gasping for their very breath. In truth the short-line railroad is sinking into a state of coma.

And so is the rather typical branch line of its bigger brothers. In the abandoned mileage reports of the Interstate Commerce Commission for the last few years are included the feelers and the feeders of some pretty important railroad systems across this land. In these cases the track and the equipment have been maintained, to a fair degree of safety at least. And a fair degree of traffic also has been doled out to them. Yet they are as vulnerable to the short-haul competition of the motor-truck upon the highroad as the separate and highly individual short-line roads.

It is but fair to add that it probably is well that many of

these short-line roads and little branches of the bigger roads should be abandoned. A considerable number of them never should have been built in the first place. But others that have gone and are going are essential to their communities. And these should be saved.

They can be saved. They can be made profitable, even against the inroads of the motor-truck.

There grew up in the later days of the World War—when, as we have seen, traffic congestion upon our railroads came close to the breaking point—a demand that the motor-truck, still an infant toy, come into the breach. It came and, I think, saved the day—gloriously, as the novelists always like to put it. We saw the day when the much-advertised Lincoln highway, not only from New York to Philadelphia but for several hundred miles further west, was crowded with emergency freight traffic, some of it fairly long-haul traffic. So were the other important highways not only of New Jersey and Pennsylvania, but of New York and Connecticut and Massachusetts and a half-dozen other States as well—as the pleasure motorist of to-day, picking his way around and past the holes and ruts made by the war-time motor-traffic, very well knows. In the flush of that traffic problem many wondrous new motor-freight routes were established. Some of them were planned elaborately. A tire-maker in Akron, finding it next to impossible to get any prompt service to his branches and his patrons in New England, instituted a motor-truck service for the 900-odd miles over to Boston, laid down a schedule for the six-day trip, and then lived up to it, summer and winter, with a precision that few American freight or passenger-trains had made for many and many a month before. Some enthusiasts, with this practical example as a text, let their fancies fly to the fullest extent. They shouted for the long-distance hauls. In fact it was said not more than two or three years ago that four or five years would see regular motor-truck fast freights established from New York or

Boston to points as far distant as Chicago or St. Louis or Kansas City.

To-day we know that these were flights of fancy. Out of a dozen through motor-truck routes established for the ninety-mile run between New York and Philadelphia, only a very few have survived until to-day. The same proportion holds true elsewhere in the more congested sections of the land, particularly those sections subject to the ravages of a hard wintertime. Yet upon the other hand a very considerable portion of the business community still seems to be at the rather definite conclusion that the motor-truck is to replace the railroad for freight hauls up to a hundred miles or less, while old-time railroaders for years past have been frank in saying that a freight-car did not even begin to make money until it had hauled its goods at least forty miles, and to-day the modern generation of operators will put this figure at eighty miles. Up to a distance somewhere between these figures—and undoubtedly far nearer eighty than forty—the vast city terminal charges of the American railroad nullify the profit of the haul itself. In due time I shall come to a detailed consideration of these questions of freight terminals in our large cities. Consider now that the motor-truck, to a very large extent at least, is freed from this terminal problem. That is a long point in its favor.

At the present time approximately 2,000,000 ton-miles of freight are being transported in this country each year by motor-truck; and five years hence it is estimated that this figure will have risen to 60,000,000 ton-miles. It is understood, of course, that the arbitrary and comparative figure of the ton-mile is reached by multiplying the number of tons actually handled by the number of miles that each shipment actually goes.

These figures are taken from an admirable article in a recent issue of the "Atlantic Monthly," by Philip Cabot of

Boston. Referring to the overuse of the highways of New England by the motor-truck, Mr. Cabot says:

Every abuse carries its penalty. The penalty for this abuse of our roads will be a heavy one, which the taxpayer must pay. The Commonwealth of Massachusetts has spent more than \$25,000,000 of the taxpayers' money in road construction, much of which has already been ground to powder under the wheels of the five-ton truck; and the damage must to-day be repaired at perhaps double the former cost. Our State tax has mounted in recent years by leaps and bounds; the contribution of the truck-owner to road construction is so trivial that most of the burden will fall upon the taxpayer, on whose now overloaded back a huge additional levy is about to fall at the very moment when he is expecting relief. And make no mistake as to who must bear the burden. The old notion that a tax could be pinned upon one class has vanished into thin air. We now realize that it is not the capitalist who pays the tax, or the manufacturer. It is the man in the street who pays the tax, in the increased cost of everything he buys. He pays the bill for every waste of public money.

This same situation is being repeated to-day in the State of New York, where more than \$100,000,000 already is being expended in the creation of some eight thousand miles of highway, which already is being ground to pieces under the heavy wheels of the motor-truck. Against this highway improvement are issued bonds with an average life of fifty years. The road, used as a freight line, goes to pieces in seven or eight years. The result is a financial *impasse* that even a schoolboy should be able to fathom.

What is true of Massachusetts and of New York is equally true of California or Ohio or Pennsylvania or New Jersey or any other State that has gone to great trouble and expense to upbuild an elaborate system of improved highroads for itself. And the roads are not alone too lightly built, but in a majority of cases they are entirely too narrow for heavy motor-truck traffic. To this last almost any motorist can testify. He can

contribute almost numberless personal experiences of trying to pass these bulky box-cars of the highway—box-cars which, in about nine cases out of ten, really have no business there.

For do not forget that one of these biggest motor-trucks does not carry, or should not be permitted to carry, more than five tons of freight upon the public highroad, while a really good freight-train upon the railroad will carry all the way from three thousand tons upwards, and with a working crew of, at the most, six or seven men. To carry this minimum bulk of merchandise in five-ton trucks would entail the services of six hundred trucks and at least six hundred men. To this statement one of my friends, who is a real enthusiast in regard to motor-trucks, takes vigorous exception:

"That isn't a fair comparison," he sputters. "How about the other men who work the railroad—the despatchers, the shop-forces, the gangs of trackmen—all of them?"

To which I reply: "How about the gangs that keep up the highway?" The fact that the motor-truck operator does not directly pay the wages of these men does not mean that he, or some one else, does not pay them indirectly, through taxes. And garage and shop-costs are quite as much a part of the cost of upkeep of the motor-truck as of the locomotive.

It seems to me, however, that we are beginning to miss the real point and pith of the thing. Let us grant the motor-truck some of the obvious things that are in its favor: the vastly increased proportionate energy of the internal combustion engine over that of the steam locomotive, no matter what may be its fuel; the flexibility and economy of the unit over that of the electric motor in districts and upon lines of comparatively light volume of traffic. These advantages the motor-truck has already shown where it is given the opportunity of a well-paved highroad. Upon a bad road there is little economy in its use. It thrives best upon the roads which were built, primarily at least, for the comfort of the passenger automobile.

But suppose we improve upon that well-paved highroad. There is not a concrete nor an asphalt highway in the world that is comparable with the polished surface of the smooth steel rail. The tractive power of any unit increases vastly when it is used—often as high as twenty-five times.

In other words, and to drop simile, we take off the expensive rubber tires of the motor-truck and substitute for them the steel, flanged wheels of the railroad-car or locomotive. Presto! We have a completely self-contained locomotive far lighter than the lightest practicable steam locomotive and running at about a 35 per cent. power economy, while with that locomotive we combine the freight-car or the passenger-car, or both.

"If it were not for the gasoline-motor unit I should not be able to operate this little road to-day," says the general manager, superintendent, and all-around Pooh-Bah of a short-line up in the hills of northwestern Pennsylvania.

I know precisely what he means. His oil comes from near-by wells. He buys it at a great economy. His good-sized truck—it will carry seven or eight tons of freight or passengers—is enabled to make six round-trips a day over twelve miles of line at far less cost than a small locomotive and train would involve for but two round-trips a day. In other words he has tripled his service, with inevitable beneficial results to the passenger-traffic of the little road, and has made real savings in his operating costs. A road which otherwise would have been added to that appalling total of abandoned railroad mileage for 1921 has been saved, to the great benefit of the communities that it serves.

Not long ago I rode from Kane to Mount Jewett, twelve miles across the hills of that same northwestern corner of Pennsylvania. I wanted to catch the northbound flyer of the Buffalo, Rochester, and Pittsburg railroad out of the latter town. Between Kane and Mount Jewett there stretches a

rather remote branch of one of America's largest and best operated railroads. It was in the dead of winter and I should have preferred to ride upon a railroad train. But one train a day and missing the important connections gave me no opportunity whatsoever. I was forced to ride in a motor-bus upon a slippery ice-coated highway. Twenty-three other persons, the most of them also trying to catch the northbound flyer of the B. R. & P., were doing the same thing. The bus made four trips a day in each direction and the driver said that it was not only good business but steady. He charged seventy-five cents for the ride in each direction, which was something more than six cents a mile. A good many people complain at paying more than 3.6 cents a mile upon the rail, but they are not usually shorthaul riders.

Here was a steam railroad losing its traffic by default. Obviously it might not be able to put a steam train on that little run—in all probability a worn-out engine with two worn-out and dirty cars—and make a successful opposition to the motor-bus, but I think that with its own well-planned motor-unit operated on frequent headway and in connection with the trains at its terminals it would regain for the railroad a large portion of the lost traffic. Unfortunately, as I have said, this was a remote branch line. Yet the president of the railroad of which it is a branch has much pride in the thought that he loses nothing in the efficiency of the operation of his property because it is merely widespread. He honestly and sincerely is trying to build up its service, to repair the inroads made into it during the period of Federal administration. He has done wonders in a few short months. But, largely because he is but a man and not a super-man, he cannot know everything about his remote branches of this sort. He cannot even build up an organization that will know it. No president of a 4,000-mile railroad ever can. Which is one of the large evils to be charged forever against the absentee landlordism method of operating our railroads.

In a certain Eastern State there is a small railroad of about 130 miles in length which narrowly escapes being known as a real short-line railroad. The fact that the road's annual earnings barely exceed a million dollars just bring it within the Interstate Commerce Commission's classification of Class I railroads. It traverses a rough mountain region. Its business is largely seasonal. In the summer it hardly can secure enough passenger-cars and locomotives to handle its tourist business. In the winter it can hardly find enough passengers to justify the operation of two small trains over the line, while at all times its freight traffic is inconsequential.

When first I came to know this property a dozen years or more ago it operated three passenger-trains a day the year round over the entire system—the main line and two branches. But that was before the day of the competitive motor-buses and the improved highways that now parallel almost every mile of its trackage and for which, as a heavy taxpayer, it has contributed rather liberally. Its local fare at that time was fixed at three cents a mile, although a State law compelled it to sell mileage books at the rate of two cents a mile.

Both the competitive motor-buses and the competitive privately owned and operated automobile have gradually decreased its passenger earnings, although the resort locality that it serves has grown steadily in prestige and patronage during this last dozen years. It met the competition of the gasoline locomotive upon the highroad, how? By cutting its all-the-year train service to two trains a day and gradually raising its fare to five cents a mile. People who have to go from one end of its main line to the other, about 110 miles, are still likely to patronize it. The motor-bus is hardly more effective in the long haul than is the motor-truck. And in the really bleak days of winter its snug little passenger-cars, well lighted and warmed, have more appeal than the poorly lighted and heated motor-buses that traverse the State highway.

Yet that is about all. At all other times it is the motor-bus

that has the prestige and the popularity. It reaches into the heart of the towns it serves; the little railroad's passenger-stations are not well located—not in every instance, at any rate. It stops to receive or discharge its passengers at virtually any point along its route. It is clean. And in summer it is not only cleaner but cooler than the steam train.

But suppose that this little railroad should devise or find a good gasoline-unit passenger-bus and, fitting it with flanged wheels, operate it five or six times a day, over its main line at least. It might be compelled to retain one steam train a day in each direction because of the milk, the mail, and the express business along the route. The other four trips could easily be made with the gasoline-motor units.

At the outset there would be real frequency of service, a very great point in attracting any volume of passenger business. A commercial traveler who goes up its main line to-day and who sought to do any business even in the fairly large towns along the route could hardly make the trip in one direction in less than a week. The result is that most of the drummers to-day have their own automobiles and make the round-trip in three or four days. With the two-trains-a-day service they frequently found that they could complete their business in a village within the hour, after which they would have to wait perhaps five or six hours before the train came along which would carry them to the next town. Now they can clean up their business in a village, whether it takes fifteen minutes or an hour and fifteen, and be off to the next town as soon as they are done with all of it, while a real volume of traffic is lost to the railroad.

A service of five or six trains a day, such as I have just suggested, would bring a great part of it back. The inconvenient location of this small railroad's passenger-station in its chief town easily could be overcome by having its gasoline-unit trains stop at the principal street crossings through the community and a real flexibility of service rendered. The fact

that the railroad's gasolene-car was a little heavier, a little warmer, a little better lighted than its competitor of the paved highway would be a talking point in its favor. Added to that the facts that the gasolene motor-car of the steel highway is protected at all times by the flange of the rail—skidding is not an infrequent accident upon the paved road—and by the telegraphic order—collisions are not unheard-of things upon the State highways—and operated by a skilled and trained employee are other talking points that would have quick appeal to any man of advertising sense. We shall talk of these last possibilities again when we come to discuss those of selling transportation. In the meantime bear them in mind as strong arguments in favor of the possibilities of the individual small railroad or small branch of the big railroad. If these feelers wither and die to-day, it can only be the fault, in most instances, of the men who control them—at least of their lack of far-sighted vision.

It could be put down fairly as a lack of far-sighted vision of our steam railroaders, who at last are beginning to see the economic possibilities of the gasolene-unit passenger-car these days, if only to supplement the present extravagant steam trains upon their local lines and turn no point nor part of their economy toward the benefit of their patrons. In other words the point that I have just made of the mountain railroad, which could bring back its traffic by using its gasolene-units to make six trips a day instead of the present widely-spaced two trips of the steam trains, applies with equal force elsewhere across the well-built portions of the country. Such a method at first sight will not appeal to the average steam-railroad operating man, schooled as he is to bow deep before those twin gods of the train-mile and the car-mile. Increased train-miles? Impossible. Not impossible. I will go further and say that it will be quite impossible for the average steam road to make any headway whatsoever against motor-bus competition until it increases its train-miles, at least, radically. Frequency

of trains is, as we have seen, the real test of passenger service. The gasoline-unit has made it possible to meet this test and still achieve real operating economies. It will be a vast pity if it is not installed generally, with this high service purpose in view.

For the moment we have been concerning ourselves with the passenger opportunities of the motor-truck mounted upon the steel rail. Its freight opportunities are not less impressive. When with the inevitable correlation of the container (the huge steel packing-box for the prompt handling of package and other freight) the flange-wheeled motor-truck upon the branch-line is made a perfect supplement to the box-car upon the main line, we shall have something that begins to approach really efficient modern transport upon our American railroad.

Mr. Cabot in his "Atlantic" article upon the New England situation, from which I have already quoted, draws attention to the obvious and striking analogy between New England and Old England, both in the congestion of population and in the character of industry and of traffic, and then asks why it is that New England should not be served with the same form of railroad transportation with which Old England has been served these many years, and with great success. He draws attention to the futility of using huge box-cars, such as those that are used in the long-haul business of the central and western parts of the country, and criticizes sharply the employment of Western railroad executives in the New England territory—men who have been schooled particularly in the movement of long-distance freight.

Certain it is that Old England—every part of Great Britain—knows well the efficient handling of short-haul freight-traffic. The ten-ton goods-wagon (at the most, fifteen) of the British railway is a small unit, easily handled, if necessity arises, by a horse or two at a country station. It is an inexpensive unit

too; and being inexpensive England is able to have over a million freight-cars for her 25,000 miles of line as against but a little more than two million for 265,000 miles of railroad in the United States, which makes much for the flexibility of her railway freight service.

Moreover the freight-traffic of Great Britain is virtually an overnight service. Ordinary package-freight over there moves with much of the celerity and ease of the express in this country. Goods despatched from London terminals in the late afternoon are at Bristol or Manchester or Liverpool or even Glasgow and Edinburgh the next morning. While it is obvious that if the high-speed gasolene passenger-unit is introduced to any large extent in this country, we also shall have to speed up the freights that are interlarded between them, which will naturally mean the larger use of a high-speed and improved steam locomotive of comparatively moderate weight, and the use of comparatively small swift freight-trains, we shall have to abandon, for this sort of service at least, our American fetish of the excessively long and the excessively heavy freight-train.

For the moment we have permitted ourselves to drift away from the gasolene-motor unit upon the railroad track. Up to this point I have stressed the stripping of the rubber-tired wheels of the ordinary heavy motor-truck and the substitution of flanged steel wheels in their place. There is a compromise to this plan which is at least worth a passing paragraph of attention.

Down in the Imperial valley of southern California there was built a dozen years or more ago a small steam railroad, eleven miles in length, connecting the somewhat isolated village of Holtville with the Southern Pacific at El Centro. It eked out a fair sort of existence until the coming of the automobile truck and the improved highway began to cut sadly into its earnings. Its little passenger-train then found that it could not compete with the motor-bus. Its earnings fell to nothing.

The situation was most discouraging. It looked as if the little railroad, into which a considerable amount of capital had been poured, would have to be abandoned.

It was not abandoned. Some inventive genius over in Los Angeles devised a motor-truck with a different sort of wheel than had ever been seen before. Inside there were the flanged wheels for the contact upon the steel rail, and, just outside of these, heavy rubber-tired wheels for use upon the highway. The problem of that little road, both for freight and passenger traffic was solved. No longer must it await the passengers and goods who found their way to its station at thriving and growing El Centro. Its combination trucks took the city streets very easily; they could go to any hotel or merchant's door, receive passengers or freight, and then, making their way to the railroad terminal, by a simple mechanical device mount the rail and go hurrying off to Holtville, with the tractive advantage of the steel rails over even the well-paved dirt road that already I have shown you. Moreover it became no longer necessary for the road to go to the expense of train-despatching. If two of its "trains" met midway on the line, by the use of this same ingenious mechanical device, one of them could remain on the rails and the other go to the earth surface alongside of it. This then became the ordinary operation of the line, that trains going east upon the track had the right to the rails, while those going west would take to the dirt. What could be simpler?

The flexibility of the gasoline-motor unit is indeed astounding. It is not inconceivable that a device such as I have indicated should be so extended as to permit a motor-truck or passenger-car unit to go far beyond the limits of the rail terminals. In other words, why should Holtville be the terminal of the Holtville interurban? If there is a load of freight eight miles to the east of it, why not send the "train" on the highway for that eight miles to let it pick up the freight.

The correlation of the highway with the steam railroad is a topic of almost unending fascinations. By it the branch lines of our big roads and the main stems of our small ones may be continued almost indefinitely. There undoubtedly are many cases where it would be both more practical and more profitable for the railroad to abandon the branch line entirely and use in its stead the nearest parallel highway. Into this possibility there enters, of course, the question of the congestion of that parallel highway. One of the arguments that I have just used for the placing of the motor-truck upon the railroad track is to give a much needed relief to the highroad. Yet here, as in so many other places, one cuts the cloth to meet the situation. In one instance it might be most advisable to use the highroad as a supplement to the railroad track; in another it would be a great mistake.

This entire prospect has vast ramifications. In Great Britain the railways already are moving toward a use of the highroads in direct competition with the trucks and steam lorries of the independent traders. Their moves are not being made without opposition. At this moment it is difficult to tell whether or not they are to be given permission to go to the highroads themselves and there fight it out with their newest competitors. But whether they gain this point or lose it, the fact will remain that they show a real vision in the very suggestion. To an impartial observer it seems as if a railroad which almost always, if not absolutely always, is the largest taxpayer in any community would have certain inherent rights in the public highway which it is taxed so heavily to support.

But whether or not ideas such as these are practical things or merely the fancies of a dreamer, the fact remains that our American railroads, obsessed by the possibilities of through or long-haul freight traffic, have as a rule ignored the vast extensive possibilities of the short-haul, which may be set down as one of the damnable heritages of our competitive railroad

system. They do this intensive cultivation of traffic far better in France, which long ago discarded the competitive principle as both foolish and extravagant. Let me illustrate.

Not many months ago I found myself in the little, obsolete Atlantic fishing-port of Les Sables d'Olonne, in the Vendée country almost half-way between St. Nazaire and La Rochelle. Up to the stout stone quays of that picturesque enclosed harbor there ran three types of railway, each of them rather typically French. The first was the standard-gage (four feet, eight and one half inches) branch of the State Railway system which connected Les Sables d'Olonne with a main line, and so, with all the rail lines of the rest of France and of Europe. There was a sixty-centimeter (twenty-four inches) narrow-gage also at the railway terminal and the quays; as well as a third at the harbor-side of but forty-centimeter gage. This last interested me tremendously. Its tiny rails, spaced a bare eighteen inches apart, seemed so inefficient; and yet they told me that it had been in successful existence for many years past.

"It is the *poisson* line," they explained.

"The what?" I asked.

"The road that reaches out along the beaches and brings the fish into the big ten-ton cars that await it here at the railway terminal," was the further explanation. I understood. That was correlated rail transport—the tiny engine (it was hardly larger than those that are operated for the delectation of children at country fairs) and its little cars were an active and efficient feeder for the big main railroad system of the republic. Intensified transport, in its largest sense.

Later that day, as we drove from Les Sables d'Olonne, we rode for a long distance alongside the sixty-centimeter line. Its rails were placed inconspicuously in the greensward beside the national highway. It followed that highway for many miles, dipped and rose when the highroad dipped and rose, and when the highway came to a culvert or a narrow bridge the little railroad, without hesitation, curved its way and shared

the narrow bridge. At one town we met the train—there was only one upon the line, going up in the morning and back again at night—but it had a stout and immaculate twenty-five-ton locomotive which hauled three or four light passenger-cars and six or seven cars filled with local freight.

Do not laugh. I know myself what this idea would be in the United States—a copper wire above the center of the track, separate bridges at the little creeks and rivulets, rock-ballast perhaps, standard-gage, even private right-of-way and *big* trolley cars—how we Yanks do love the sound of that word “big”!—running every hour up and down the line. Economy? Nonsense. Why speak of the thing? We are rather proud of our interurban trolleys in many parts of this land. But the average interurban stockholder is not very proud of his holdings in them. We have seen the disaster that has come to some of them in New England. Few of them to-day are earning any money; in fact the greater part of them to-day are fighting bankruptcy, despite heavily increased rates and forced operating economies of a sizable nature. Many of these roads should never have been built, particularly where they paralleled existing steam railroads. That was a grave economic mistake for which we are now paying. The lines that led out from the steam roads should have been correlated years ago. That they were not was due generally to a very stupid pride that veiled itself as conservatism.

Yet these little French narrow-gage lines, if they have not made “big” money, certainly have not lost. In the years before the coming of the World War they would generally average about 2 per cent. annually upon the investment. But this was not the point. Locally owned and managed they were not built primarily for profit but as a convenience to the communities that they served. Please remember this. In Paris I once found a man who had built many miles of these small railroads.

“Cheap?” said he, in reply to one of my questions. “Of

course they are cheap. That is the point of it. They rise and fall with the contour of the highroad because that saves expensive grading work. But you will notice that the highroads that they follow almost invariably are in the fairly level portions of France, and so the grades are not such that a well-designed locomotive, even if a fairly small one, cannot traverse them without difficulty. The lines curve sharply to make the highway bridges—but separate bridges would cost money and our narrow-gages primarily are cheap railroads. And our little locomotives are not bothered with the curves. They are extremely well-designed for their own purposes, and so when our line makes a right angle from one highroad to another, because a long easy curve would mean a separate right-of-way, possibly tearing down houses into the bargain, our well-designed locomotive brings ten or twelve or even thirteen loaded cars around that sharp turn in the highroad with little or no difficulty.”

The Frenchman rose and came around his office table, pointing his finger in my face.

“Don’t you see? Can’t you understand?” he went on. “We have saved that immensely costly thing that you Americans call ‘overhead.’ The owners of one of these little roads of ours have not tied up a small fortune for every mile of them in grading and bridge-work and copper wire and power-houses. Our locomotives are small—always well-designed, mind you, and so not so very expensive, yet only one or two or three are required for the entire service of our average narrow-gage. The best of these cost far less than the smallest dynamos, to say nothing of car-motors, while the poorest of them will haul our little cars.”

There is a big lesson for America in these little roads. All of our highways are not improved highways; only a very small proportion of them are, in fact. It will be many, many years before any large proportion of them are completed. One shrinks at the very contemplation of so vast a task, while,

as I have said, there is a growing disinclination against the use of our new paved roads as railroad tracks, particularly for heavy freight service. The most of them are too narrow; and even the wider roads are gradually pounded to pieces by the all-year use of ponderous motor-trucks. Remember that the average life of the best of the highways in the State of New York, where the manufacture of these roads has reached a high degree of perfection, is but seven or eight years at the most.

Suppose that we were to begin the business of laying down light narrow-gage lines along many of the important highroads of the United States—not parallel to our standard railroads but in every case feeding in or out of them. They would not have to be more than twenty-four or thirty inches in gage and they could be built in the same efficient and economical way as those in France.

For passenger traffic roads these baby railroads would be as nothing. But for the handling of goods, particularly of farm produce, they would offer a rare opportunity. It is not every farmer that can afford to own a motor-truck; in fact if he were to do really sharp bookkeeping in regard to such a mechanism he would find that it is only the large farmer who really can afford its use, not alone from the point of view of the cost of its upkeep but also because of its "overhead." Understand that for such farmers a small narrow-gage railroad as this—the feeder to a branch or main line of some standard steam railroad, running all the way from ten to twenty miles in length, inexpensively laid down alongside the highway and equipped with a single small locomotive (with perhaps one held in reserve against emergencies) and from one hundred to two hundred small four-wheeled flat-cars—would be a boon, and the capital outlay would be comparatively slight. It ought to be built and operated by the farmers that it would serve. With never more than a single train upon the line at one time, there would be no danger of collision, no

necessity of a despatching system, while the method of operation would be simplicity itself.

The train—the small locomotive and from ten to fifteen of the little cars—would start down the line from the main terminal, where it connected with the standard steam railroad. At each farm-house there would be a simple switch or siding. At each of these, one at least of the little cars would be set. Such would be the early morning process of operation. Toward night the train would come back, in as many trips as were found necessary, and gather up the little cars, now filled with the farmer's produce. They would be taken to the steam railroad and there unloaded into the railroad's big box-cars for shipment down into the cities.

It would, of course, be possible to vary this plan by making the little railroad double-track, at a considerably increased expense—and using upon it gasoline motor-trucks, whose flanged wheels for track service could quickly be slipped into place. This strikes me, however, as being unnecessary costliness. Under such a plan, for fifteen car-loads of merchandise there would be in reality fifteen locomotives, each requiring a separate engineer. How much better to have one locomotive with one engineer—and possibly a fireman, too—haul these fifteen car-loads of merchandise! The locomotive easily might be a gasoline or kerosene internal-combustion unit or it might be a steam locomotive burning either coal or oil. That is a matter for experimentation and careful decision. And that is not the point.

The point is that the average little farmer cannot well afford to tie up money in a motor-truck which probably will stand idle all too many hours out of the twenty-four, or else tear itself to pieces upon the rough roads of his fields. Even the tractor used in slow hauls to town and back is a doubtful economic benefit. But the type of car such as is suggested could have its flange wheels exchanged for regular iron-tired wheels in five minutes—probably the smart farmer's son could

do the job in three—while either the tractor or the team of horses or mules could draw it down into the fields where it would receive its produce.

Such a railroad—how I should like to hear it called the Bates County Farmers' Railroad or something of that sort!—would carry coal and merchandise out from the standard railroad to the farm-houses. Its chief utility, however, would be the inward movement of produce. The relief to the highroad, in case the highroad happens to be the typical narrow, light pavement so often used in this country, would be obvious, while in the cases of the all but unspeakable dirt and sand roads the relief to the farmer's horses or trucks, to say nothing of his nerves, would be vast indeed.

Sometimes when I contemplate the vastness of the possibilities of rail transport in these United States I am staggered with their enormity. We sometimes say that we now have developed a complete railroad system in this country. Such a statement is a joke. We have not even scotched the surface of transport possibilities here. We have tackled the obvious and neglected the possibilities not so obvious. But they do exist nevertheless and await the coming of the right intelligence and imagination to make the proper use of them. This brings us at once to the possibilities of the freight-container for the American railroad—not only for the railroad but for all those other forms of transport which we have said should be allied with it and which eventually, I believe, will be correlated and allied with it—the motor-truck, the canal-barge, the outbound steamship. For all of these forms of transportation the container is the veritable keystone of the arch. It is more. It links them together. It is not merely the keystone but the binding mortar itself of the transport arch.

I spoke but a moment ago of the transfer of freight from this imaginary farmers' railroad—based upon the French models—to the steam railroad at the point of connection between

the two. Transfer, at the best, is expensive. At the worst, it is both cumbersome and filled with delay. The container reduces freight transfer to an absolute minimum.

Yet because it has so many varied and fascinating phases I shall not enter upon its discussion within the pages of this chapter but shall give it a chapter of its own. It really deserves a book.

CHAPTER XII

SPEEDING UP THE FREIGHT TERMINALS

FOR years past, old-time railroaders have emphasized the point that the ordinary freight-car did not make money until it had hauled its goods at least forty miles; the newer generation places this figure at nearer eighty miles. And when you ask the whys and the wherefores of this, the answer comes in but two words: "terminal expense." To reduce drastically this expense, particularly in freight haulage, is to accomplish to-day one of the largest single economies in the operation of the American railroad, while as we have seen, and as we shall again see, further operating economies are apparently its one salvation, no matter who may assume the difficult task of their direction.

I have said already that the maximum profitable haul of the motor-truck upon the highway is from fifty to eighty miles. Now put this figure against the minimum profitable haul of the freight-car and see if we are not driving toward a solution of the freight terminal problem. I think that we are. And a single practical and concrete illustration ought to show the reason for making this statement.

Here is Jones, out near Passaic, New Jersey, tanning leather, and Smith, who has a shoe-factory of modest size at Lynn, Massachusetts, using it. In other days the leather used to go through from New Jersey to the Bay State in car-load lots. But in the last few years this method has proved entirely too slow, even with the slowly returning strength and freight efficiency of our railroads. It takes at least three roads to accomplish the distance between Passaic and Lynn, with both New York and Boston, through which the cars will probably

pass, in any brisk season transfer points of fearful and constant congestion—and with both Jones and Smith then swearing and recriminating at one another.

To-day the leather is leaving Jones's tannery each afternoon at just 3:15 and is rolling up to the Smith factory in Lynn well before noon the next day with an almost clock-like precision. Even in the days that the freight was moving in heavy volume this precision was steadily maintained. Motor-haul all the way? Oh, bless you, no! Two hundred and fifty miles to be covered, and—as this is being written, in the dead of winter—not only to be covered promptly but at a cost considerably less than express, and not so far in advance of first-class freight charges. That eliminates the possibility of the motor-truck doing the job—all the way through at least. But it does not eliminate the fact that it is the motor-truck that has made the transformation possible. Now see what really is done.

Each evening at a quarter after seven a fast-freight train of the New York, New Haven, and Hartford railroad leaves the Mott Haven terminal of that system, in the upper section of New York, for Boston. With selected equipment, it makes good time on the 229-mile run to Boston and pulls in there shortly before six o'clock in the morning. A hard-headed and long-visioned motor-truck concern in New York fills three to a dozen box-cars in that train each night. Into that Mott Haven terminal it operates its own fleet of motor-trucks, not only from all freight-giving points in the Manhattan, Brooklyn, Queensborough, and Bronx districts of greater New York, but from the many industrial towns in the vicinage roundabout, up to a radius of from thirty to forty miles. Out of the Boston terminal of the New Haven it operates a similar fleet, and so makes the journey of a package of hides from Passaic to Lynn but a single rail-haul, in addition to the pick-up and the delivery motor-run. Simplicity and efficiency. And efficiency and economy.

In theory there would seemingly be nothing to prevent the

single big express company (into which all of the old-time companies were combined, as a war-time measure) from doing this same thing. In practice, however, their contracts with the railroads forbid this very simple and efficient method of working. Those contracts compel the express company to load its freight into railroad baggage-cars, for no matter how short the haul. If the American Railway Express takes two rolls of carpet from Fifth Avenue and Forty-seventh Street, New York, to Yonkers, on the very edge of the big town and hardly a dozen miles distant from the carpet-store, it must lug them to its big terminal on the west side of Manhattan Island and there put them in a baggage-car of the New York Central for the haul to its station in Yonkers, from which, of course, there is the second delivery run. There is nothing in the theory—or in its simple practice—to keep the express company's truck which picked up the rolls of carpets at the Fifth Avenue shop continuing north to the very door of the house in Park Hill or any other section of Yonkers to which they are consigned. In a similar way express freight that is destined from Manhattan Island to a point as near as Newark—seven or eight miles of rail-haul—must all go by baggage-car, which, in its way, is quite as absurd as sending stuff all the way from New York to Chicago by motor-truck.

The big railroaders have not been quick to see the practical possibilities of the motor-truck. Gradually however these are being forced upon their attention. Take Cincinnati. Perhaps you are not a shipper and so are not familiar with the freight situation there. If so, let me tell you that in the days before Uncle Sam attempted consolidation of all his railroads and the old-time competing systems used points of individual attractiveness to gain traffic, the bright young men who sought out preference-freight for their individual lines used, as the strongest of their talking points, to promise the elimination of Cincinnati for any shipment bound north or south or east or west through its vicinage. The late J. J. Hill used to say that it took

as long and cost as much for a box-car to go through the Chicago terminals—about twenty-two miles—as from Chicago to the Twin Cities—nearly five hundred miles. Applying a similar test to the Cincinnati terminals one might say that a journey on from the Queen City by the Ohio through to El Paso would be an equally fair comparison.

For while Chicago lies upon a broad flat plain and presents no topographical problems whatsoever to the railroad engineer, Cincinnati, crouched under fearful hills there along the river, has always been his despair. When Collis P. Huntington first conceived the idea of a real transcontinental railroad system forty or more years ago and sought to bring his Chesapeake and Ohio, as an integral unit of that plan, into Cincinnati, he found the roads already there most hostile to his entrance. They held the town impregnable. Yet Huntington outwitted them by a superb coup d' état of engineering in which he thrust a marvelous great bridge over the Ohio into the heart of the city and the upper levels of its Central Union Station.

To-day Cincinnati stands as it stood then—seemingly impregnable. Its railroad terminals forever are clotted and congested. And seemingly they are incapable of expansion, short of the expenditure of many millions of dollars. From one of these, the Panhandle freight-house at the east end of the heart of the city, along the river edge to three or four others close together, the downtown stations of the Big Four, the Baltimore and Ohio, the Chesapeake and Ohio, and the Queen and Crescent, it is hardly more than a mile. A direct track along the levee connects all of them, yet the records show that the average time for a freight car to go from the first of these freight-houses to any one of the last four for years past has been two days and fourteen hours. It was because of practical conditions such as these that a great deal of the transfer work of less-than-car-load freight from one railroad to another through Cincinnati was performed by a transfer company through the city streets. The huge wagons of this concern, each drawn by horses or mules, the driver seated athwart of the southwest horse or

mule, used to be familiar sights in the narrow streets of the town close to the river. I say "used to be" advisedly. For these quaint and ancient vehicles have to-day disappeared from the downtown heart of Cincinnati. In their place the motor-truck has shown its ubiquitous self. And in place of the 115 horse-drawn open trucks—our English cousins would call them "lorries"—have come fifteen efficient, modern, five-ton gasolene trucks. The mules and the horses have been turned out to pasture. Nor is this all. A good many of the little switching engines that used to haul the local transfer or "trap-cars" from one main freight-house to another, or from the sub-stations in various outlying industrial sections of the Cincinnati district, have been released for service elsewhere, and a vast saving effected in men and in money.

Before we came to the detailed method in which these fifteen motor-truck chasses are being operated, consider for a longer moment the peculiar topographical layout of Cincinnati: On that narrow shelf of flats or bottoms between the high hills and the river in which the older portion of the city is tightly built are situated the greater portion of its industries. There it is that its business life centers. There it is then that its railroad terminals have also been centered since first the locomotive poked his way down to the banks of the Ohio. And since they have expanded to almost every square inch of available territory. To the east end of this long and narrow strip come the Panhandle lines of the Pennsylvania system, the Louisville and Nashville's main-stem and the Norfolk and Western railroad. At its western end are grouped the Kentucky Central division of the Louisville and Nashville, the Queen and Crescent lines of the Southern system, the Baltimore and Ohio reaching east, north, and west on four important stems, the Chesapeake and Ohio, and the Big Four lines of the New York Central.

The volume of traffic which these lines bring into Cincinnati and take out of her crowded heart is vast indeed, and growing rapidly year by year. Not only is the local traffic a thing to

reckoned in many thousands of tons, but the fact that there are three railroad bridges there across the Ohio, each carrying at least one important through route to the South, means a vast amount of through freight to go through that gateway—and much of it there to be transferred, which further complicates the situation.

And more than all these things the steady growth of the city has meant a constant demand for addition to her railroad facilities—addition that because of the recent difficulties in railroad finance, as well as the terrible topographical difficulties of the Cincinnati situation, have not kept pace with the industrial growth of the city. Fortunately a good deal of this recent growth has been away from her 'civic heart rather than close to it. New factories have sprung up in new industrial districts, well to the north and the northwest of the older portions of the town. And in order to accommodate the smaller concerns of these sections—Brighton, Ivorydale, and Norwood chief amongst them—the competing railroads which threaded them opened up sub-station freight-houses in each of them. These served concerns not large enough to have their own private sidings, while in order to give these industries the benefits of the same through-car service for L. C. L. (less-than-car-load) business that downtown business houses enjoyed they were served by the downtown freight-houses. The distances from these sub-stations—three or four to eight or ten miles—were of course quite out of the question for the horse-drawn lorries. So it became the practice there, as in other wide-spread metropolitan cities, to load package-freight in local box-cars—in the parlance of the business, “trap-cars”—and send these in the convoy of a switch-engine to the downtown station where space was required for their spotting and unloading. And a confounded situation was thus doubly confounded.

In regular practice these trap-cars with their outbound freight would leave the outlying sub-station each afternoon soon after their closing hour—4:30—but they would not reach the downtown stations until early evening, some hours after the L. C. L.

or through package-freight cars for that day had all been closed and sealed and sent merrily on their way toward their destinations. At the best the stuff they carried would make the through outbound cars of the second day. At the worst they might make the cars the fourth or fifth day, while impatient shippers began to burn the telegraph wires with all their woes.

To-day the freight from those outlying sub-stations at Brigh-ton, Ivorydale, Norwood, Oakley, and Sixth Street, Storrs, Covington, and Newport is leaving them at their closing hours and going out from the main downtown freight-stations that same evening—almost without a miss. The shipper smiles. And, as in the case of the L. C. L. freight to be transferred from one railroad to another at Cincinnati, great time, money, and temper are saved and efficiency gained. The reason why? Let me hasten to answer.

The motor-truck has come into railroad terminal service and has there found a field peculiarly if not exclusively its own.

And because the Cincinnati experiment has passed the stage of mere experimental trials and doubtings, because there in that fine old town at the double bend of the Ohio a real progress step in transportation has been taken that is not only of actual value to it to-day but of potential value to every other big town in America to-morrow, let us go a little more closely into its workings. Let us begin by calling to the witness-chair J. J. Schultz, president and general manager of the Cincinnati Motor Terminals and himself a railroad operating man of long experience,

Mr. Schultz tells us quickly how a little more than four and a half years ago the experiment began in the badly overcrowded downtown freight-station of the Big Four, just south of and adjoining the equally badly crowded Central Union (passenger) Station. It was a simple enough plant then—two motor-truck chasses, bought on credit from a Cleveland concern, and twelve cage-bodies worked out through the ingenuity of a local blacksmith. These were placed in service between the main freight-house of the Big Four and one or two of the outlying sub-stations. The success of the

plan was almost immediate. The two trucks went scurrying back and forth all day long, picking up and depositing the loaded bodies until the other railroad men of Cincinnati began to realize that their Vanderbilt competitors had scored a sort of a beat on them. Then they began to look into the motor-truck proposition on their own, with the direct result that to-day every freight-house in Cincinnati except one is equipped for handling standardized motor-truck bodies on and off standardized motor-trucks.

In transfer freight the scheme, briefly stated, is this. A box-car, filled with less-than-car-load stuff, all bound for different roads south of the Ohio, comes rolling down from Pittsburgh into the Panhandle freight-house, there at the east end of the Cincinnati congested district. The freight-house crews make quick work of unloading it. The package stuff which it held goes rolling across the deck of the "in-house" and without rehandling into one of two or three of a row of huge packing-boxes that stand awaiting it. These look like the small goods-wagons of the French or the English railways and are in reality the new type of standardized red and gray motor-bodies of the Motor Terminals Co. One is destined for the freight-house of the main division of the L. & N., another for the Kentucky Central division of the same system, a third for the Queen and Crescent. An average of four and a half tons is stowed away in each of them, the way-bills are placed in an envelope for the driver, and the box is then fastened and sealed like the door of a regular box-car in service. The freight-house boss moves toward his telephone. Presto! A motor-chassis pulls alongside the Panhandle freight house.

"Ready for the Queen & Crescent," the driver shouts cheerily in.

But before he receives his loaded box and the way-bills there is one to be delivered. An overhead crane running upon a track grabs the box, swings it clear of the chassis, and places it upon one side of the freight-house deck. From the other it picks up the loaded box for the Queen & Crescent and—almost

as quickly as it can be told here—deposits it upon the emptied chassis. The driver yells a good-by and the truck is off, to be replaced almost instantly with another, with a transfer load to be delivered and one to be taken on for one of the other freight-houses.

“Our despatcher allows five minutes to unload a body and to load on another,” says Mr. Schultz. “It’s a lot more than sufficient time.”

“What despatcher?” we ask Mr. Schultz.

He explains in some detail. The railroads, who keep a careful supervising oversight of the workings of the plan, have installed at their own expense a skilled train-despatcher who, at a desk and telephone switchboard in a quiet downtown corner, directs the exact operations of each of the terminal company’s trucks. Through his direct telephone lines to each freight-house and sub-station he keeps tab upon the comings and the goings of the drivers, as well as a complete and permanent record of their work and can quickly meet emergencies of every sort, instantly adjusting the service to the needs that are thrust upon it. Time is money. And time counts.

“We are handling this stuff across town to the Queen and Crescent in just fourteen minutes to the average,” explains Mr. Schultz. “And here is where the average was two days and fourteen hours—the actual practice often from eight to ten days. Some percentage of gain.”

A seemingly incredible percentage, Mr. Schultz. Yet here are the records before our eyes that prove the statement. He seems to know exactly what he is talking about:

“Take that run from the Brighton sub-station down to the main freight-house of the Big Four in the old days,” he adds. “Second night out from the main station in a through L. C. L. car—in theory only. Do you know what it took them in average practice with that trap-car? An average of thirty-six hours; that’s according to the records. And our motor-trucks make that run in thirty minutes. But because they haul an average load of but 4.37 tons, as against an average load of

nine tons in the trap-car, we must, in order to be entirely fair, take that into consideration in a comparative reckoning and say that our average haul is one hour and four minutes, which still compares pretty well with thirty-six hours. Or, to bring it still further, the average time to haul one ton of package-freight by motor-truck is seven minutes, as compared with three hours and fifty-four minutes by trap-car. Our drivers are scheduled to make ten miles an hour through the city streets, and they make it easily and without danger or annoyance to any one.

"There is another factor of saving in this service that you must not forget," continues Mr. Schultz. "By our use of the motor-truck we have saved the use of twenty-three trap-cars a day in this one freight-house alone. That not only releases those cars to the Pennsylvania railroad for line service but, by saving the platform trackage which these cars demanded, increases in a really great measure the capacity and efficiency of this freight-house. And you can readily understand the effect upon the entire Cincinnati terminal situation when I tell you that the motor-truck service which we already have in effect is releasing a total of 66,000 box-cars a year from Cincinnati terminal service for the line movements of the various railroads that lead in here."

I think I can understand. A little time ago the wisest and most conservative of the railroad operating executives who have Cincinnati among their bailiwicks were wondering how in these days of abnormally low railroad credit they were going to escape vast and almost immediate extensions to their terminals there, both freight and passenger. Now they know that these expenditures will not have to be made—for the freight terminals at least—for a number of years to come. The trap-car elimination has released anywhere from 30 to 40 per cent. of valuable floor-space in each of the present local freight-houses and so of course has added that much to their working capacity. Count that, if you please, to the credit of the motor-truck in terminal service.

Nor is the service itself representative of any cost increase. The motor terminals company is hauling all the transfer and secondary freight at an average cost of eighty cents a ton, which certainly compares well with \$1.20 which the former transfer service was compelled to charge for its haul by lorries, or the expense varying from \$1.12 to \$1.60 a ton which it costs the railroads to haul their own trap-cars by switch-engines. A saving this which goes well alongside of that of box-cars and switch-engines and freight-house space relieved, to say nothing of individual shipments, through and local, vastly expedited; all of which can be translated annually into money savings of real dimensions.

Already the motor terminals company is hauling about one thousand tons of freight through the streets of Cincinnati in nine hours of each business day. Its trucks, with maximum outside dimensions of seventeen feet six inches by eight feet, are both shorter and narrower than the lorries of the old transfer company and infinitely less subject to delays under conditions of inclement weather. Moreover understand, if you will, that the transfer company, with all of its 115 lorries, hauled but 38 per cent. of the through L. C. L. freight between the various terminals of Cincinnati. To handle all of it would have taken at least 250 horse-drawn trucks, while if it had attempted the problem of handling the sub-stations another fleet of at least equal size would have been required.

Yet its motorized successor is now handling every pound of the thousand tons or more of transfer freight at Cincinnati daily as well as all the sub-station work, with the slight increase of twenty-four bodies to the 201 already in service and without the increase of a single chassis to its present operating fleet of fifteen. To perfect and quicken its service the overhead cranes for loading and unloading the box-bodies are being equipped with motor-trolleys, in place of the man-power chain arrangements, which in turn represents a speed of fifty feet a minute as against but seven under the old order of things. And this of course is still further efficiency.

So much then for the situation as it stands to-day in Cincinnati. It does not take very much of a vision to see in the proved success of a terminal plan, which already has ceased to be an experiment, a great enlargement of the freight gathering and distributing scheme for the entire city. No longer will it be necessary or even essential that a freight-house of a railroad be located either at or near rails. It can come far closer to its users. In other words railroad sub-stations for the collection and delivery of package-freight can be established in every industrial section of Cincinnati, thus shortening the haul for individual patrons and so in turn perceptibly lessening the congestion in the city streets.

Do you see now where this is leading us? With sub-stations so established, the principle of standardized interchangeable motor-truck bodies and chasses working to so definite an end, there remains little or no use for downtown freight terminals in a city like Cincinnati, save perhaps an occasional team-track yard for heavy car-load shipments. In the flats at the edge of the town the railroads can, and in my opinion eventually will, establish new and generous-sized freight-houses and other terminal appurtenances. The downtown stations, located in the heart of each industrial district, will do the rest. The expense of building these last will be as nothing. The value of their upper floors as lofts for light manufacturing will far more than offset the cost and upkeep of the ground-floor motor-freight terminal, while the facility of movement, with its multitude of resultant economies, will make the expenditure on outlying main terminals money well spent indeed.

As goes Cincinnati, so must go the land outside. It is from this point of view that its radically new terminal plan assumes a nation-wide interest and importance. As I lingered in its various railroad terminals beside the neat wood and iron motor-body boxes upon the freight-house decks—the original open cage design has long since been discarded in favor of the stronger and more permanent form of carrier—I could not

help but be struck again with their resemblance to the small ten-ton goods-wagons of the French and English railways. And I recalled the tremendous efficiency of these same small wagons for the work for which they were best adapted, the hauling of package freight, the sort of things we know in this country as L. C. L. One of the great disagreeable sources of railroad outgo in America, and one that has a constant tendency toward increase, is the list of claims paid for freight damaged in transit. It makes a pretty big annual bill, of which an astoundingly large proportion is gained through breakage in the transfer-houses. Remember that right here is where our French and English cousins can always show us a trick or two. With their little ten-ton cars there is always enough package-freight to "make" a full car even to the smallest communities, while once arrived at one of these, a switching-crew composed of a man and a horse handles the car-load shipment with great care and no little speed.

Then as I stood there upon the big and orderly decks of the Cincinnati freight-houses—orderly upon the coming of the motor-truck into terminal service, and for the first time in many years—it kept coming to me, why could not these stoutly built boxes go through to Dayton or to Columbus or Indianapolis, or for that matter anywhere within reach of the American freight-car? Two of them would go quite easily upon the deck of a flat-car; it ought not to be difficult to find "flats" to accommodate three of the seventeen-foot motor-bodies upon their platforms. But even with but two, there would be nine tons of package-freight, which is fully as much if not more than the average package-freight box-car is carrying to-day across the land. While thirteen tons—three well filled motor-boxes—runs well ahead of that average.

Suppose that this long Big Four flat-car was to run up to Columbus—150 miles or more up the line—with three motor-boxes upon its deck. One might have been filled at the main freight-house of the Big Four, down in the shadow of the big passenger terminal, another at Brighton, the third, let us say at

Norwood. The exact stations are immaterial. The point is that the freight would have but one transfer—at the in-house of the Columbus terminals. There an overhead track-crane would pick the three boxes off the “flat” and place them upon the freight-house deck, where they could be quickly unloaded and their contents placed on trucks or lorries for Columbus distribution. While in turn the motor-boxes would be re-loaded for shipment back direct to Cincinnati-Downtown, Cincinnati-Brighton, and Cincinnati-Norwood.

There is nothing impracticable or impossible about such a plan. On the contrary, it is most tremendously practical and tremendously efficient withal. Its installation is neither difficult nor expensive, while the savings are vast. A conservative estimate would place these already at \$1000 a day in the Cincinnati district. Carry that ratio all the way across the country and you have a possibility of railroad operating economy in the aggregate not to be sneezed at.

The whole broad national field of railroad operation awaits the coming of the motor-truck and its detachable body into terminal handling. It is to be a great factor in the railroad of to-morrow. Come east, if you will, from Cincinnati into New York. Now we have a teaser of a problem. Far worse, even, than that of the city by the bend of the Ohio. The freight terminal problem of the island of Manhattan alone is to-day the greatest single problem of transport in all this land, if not, indeed, in all the world. Into it constantly is being injected idealism, engineering, politics, common-sense—all of these, apparently to but little avail. An elaborate plan has been formulated lately for the correction and revision of the entire terminal problem of the New York metropolitan district (including not only all the outlying boroughs such as Brooklyn, Richmond, and the Bronx, but Jersey City, Bayonne, Weehawken, Hoboken, Newark, Paterson, Passaic, and many other closely allied communities). This plan is being engineered by the newly created Port of New York Authority,

modeled closely upon a similar body for the port of London. As this is being written, it is being resisted stoutly by the city administration of New York. I shall not go into this phase of the problem however. There are enough others to be considered, and this particular one sooner or later will come to an automatic solution.

For no matter whether the city administration or the Port Authority (created by the States of New York and New Jersey) comes atop, the island of Manhattan will remain the crux and key of the whole problem. For its relief it may be necessary, as has been suggested, to build relief belt-line railroads no nearer than forty miles away from it. That is a matter for the future. For the present consider that disregarding political boundaries—traffic takes little or no thought of them—the commercial center of metropolitan New York (in the sense which I now mean, a well-grouped city of ten million people, even though in two separate States) is and must remain upon Manhattan Island. There is the commerce done. There the freight comes to a clearing-house. Manufacturing may increase and probably will upon the outer rims of the district. But distribution will remain close to its heart.

Consider for a moment, if you will, with me the antiquated freight facilities of the heart of what long since became the second city of the world, and which to-day, commercially, at least, is its first. Upon the long, slender island of Manhattan but one steam railroad has direct rail freight facilities. That road is the New York Central, which many years ago preempted most of the western edge of the island for itself and so gained a vast strategic advantage—also a choice assortment of political quarrels. However, the one thing probably more than offsets the other. There are nine other important freight railroads, however, entering the New York metropolitan district (not counting the West Shore, which is a subsidiary of the New York Central). These roads, together with the Central and the West Shore, occupy thirty-five vastly valuable

piers in the congested sections of the island south of Forty-second Street and so hold the piers from coastwise and from outbound steamship lines which clamor constantly for them.

To these piers the freight-cars of these eleven railroads come on long clumsy car-floats, each accommodating about ten cars. The floats are loaded at the direct water terminals of the railroads across the Hudson and elsewhere and are poked by stout tugs into position alongside the freight-piers. In theory a single standard pier of Manhattan should empty and load, even in this rather clumsy fashion, about eighty cars a day. This is based upon having four floats at each of them at a single time. In practice they do well if they clear forty cars a day. The berthings between the piers are narrow, there is much congestion in them and in the rivers about Manhattan Island, and delays are not only frequent but constant.

Yet the delays upon the water sides of these piers are as nothing compared with those upon their street sides. Any New York merchant, retail or wholesale, will tell you of these—of trucks standing in line long, weary, expensive hours outside the pier-doors and then wasting more time after they once get inside, before they are loaded and out again. On an average 60 per cent. of a truck's time is so wasted. The average downtown pier is but eighty feet wide, and after a thirty foot roadway has been left down its center there is not much room for the freight. There must be a vast amount of pulling and hauling over the accumulated merchandise. This all takes time and money.

Concretely, it costs about two dollars a ton for package-freight (known technically as the classified) to get itself unloaded upon a Manhattan Island pier. Add to this fifty to sixty cents for the hand-work of unloading upon the pier and a hauling cost through the streets of downtown New York of from eight to ten cents a hundred; and you have a total terminal cost well in excess of four dollars a ton, which is entirely too much.

One of the chief tasks before the engineers of the Port of

New York Authority is to bring down this cost. They have proposed a fascinating and elaborate plan by which the freight-cars upon the eight railroads coming into New York from the south and west be unloaded well outside the rail terminal congestion—the essence of the fully-developed Cincinnati plan which we have just seen. Their freight would go into a form of container which would ride into Manhattan upon a miniature underground electric railroad, not dissimilar to that in successful use in Chicago for a number of years past. This road, connecting with the outlying freight interchange points, would dip under the Hudson River at the Battery and continue up under West Street, at the extreme westerly rim of Manhattan Island, to about Thirty-third Street, where it would again tunnel beneath the river and return to New Jersey—a simple and efficient belt-line.

This scheme is most interesting, despite its weakness in ignoring the uptown growth of Manhattan Island by quitting it south of Thirty-fourth Street. Unfortunately it is most expensive, as well. Most such plans are. Its estimated cost is \$259,000,000. A keen and experienced railroader of my acquaintance, taking this into consideration for his overhead and making a sharp analysis of probable operating costs, has not hesitated to give it as his opinion that this underground electric railroad would impose a terminal cost of something over four dollars a ton for classified freight entering Manhattan from the west bank of the Hudson River. Add to this your street haul costs of from eight to ten cents a hundred and you begin to get something too dangerously close to six dollars a ton to have much joy in it for the New York merchants.

One of the most important of the eight railroads entering New York from the west, from a freight traffic point of view, at least, is the Erie. Despite a fearful heritage of financial obligations incurred during its maladministration of half a century ago, it is a remarkably progressive property in its operating methods. Poverty and the consequent need for extreme

economy have forced it into many ingenious and highly practical operating kinks. The vast expenditures involved in the elaborate plan of the Port of New York Authority can have little fascination for the energetic F. D. Underwood and the rest of the Erie officers, who know how very hard it is for them to meet their operating and their fixed charges—dividends are not in their hopes.

With this in mind they have sought to meet the New York terminal situation, not with large expenditures but with an adaptation of the tolls close at hand. Already they have entered into a contract with a trucking concern upon Manhattan Island to work out the details of a most ingenious plan which goes after this fashion.

For many years past the Erie has operated two ferry-lines from its historic terminal at Pavonia Avenue, Jersey City, to New York—Chambers and Twenty-third streets respectively. To meet the large suburban passenger necessities of the road it is necessary to operate these upon fairly frequent headways. Yet Pavonia Avenue is not an accepted route for through motoring, either freight or passenger which means that the Erie ferry-boats have been more crowded in their cabins than upon their team decks. Yet it is obvious that it costs little or no more to operate a well filled ferry-boat than one that is but half-filled. Moreover in Pavonia Avenue, Jersey City, the Erie possesses not only ample freight house facilities but room for a large future expansion of them.

Of course, it was quite out of the question to expect the average merchant of Manhattan Island to go to Jersey City to get his freight, particularly when the Erie's enterprising competitors were crying their willingness to set it down in the West Street piers. Mohammed would not go to the mountain, but in this instance the mountain would come to Mohammed. The Erie made arrangements with a large trucking concern in the City of New York to take classified freight in ten-ton units to the merchants' doors. These truck-bodies are four-wheeled, their forward wheels being rather light and

rather small. There are three of these bodies to one tractor unit, which means of course that while one body is in transit attached to the tractor, the other two are at the respective termini being loaded and unloaded. So is time saved; and so is saved the expensive overhead upon the tractor-unit while the clock goes steadily ticking forward.

Eighteen of these truck and tractor combinations go upon a single ferry-boat. The ferry-boat headway is seven and one-half minutes, which means that working at full speed 1760 tons—a fair-sized train-load, for classified freight—can be handled each hour. And if you wish more figures still, please understand that the terminal cost of trucking to the merchant of Manhattan has been lowered by this method from eight to ten cents a hundred to but five or six.

Economies? Sometimes I think we of America do not know, even yet, the real meaning of the word.

Yet this is but the beginning of the Erie's work at its New York terminals. Its big job, upon which it is just now embarking, is bringing into play the container in its most real sense not merely as a detachable truck-body but as a steel-box which can be loaded and then handled in almost any conceivable form of transport.

The idea is simplicity itself, nor is it a particularly new one. For many years past the express companies have used it for the transport of their comparatively small and valuable packages, placing these in large iron-bound wooden trunks for safety in carriage. It is more than a dozen years ago that a professor in one of the New England colleges—Amherst, I think—wrote an article in which he advocated the scheme for all package-freight and sent the article to a technical publication, which promptly refused it, saying that it was entirely too visionary an idea.

Yet here we are, fairly come to it in these days. The Erie plan in its last refinements proposes to unload the package-freight for New York at its yards at Croxton, New Jersey, just west of the Bergen tunnels, and then after reassortment to re-

load it into steel container-boxes, seventeen and one-half feet by eight and one-half, and with a working capacity of five tons. Two of these containers will fill the platform of an average flat-car.

The reassortment or transfer work at Croxton will be not only into containers for the Erie's various sole and joint freight-stations in Manhattan, the Bronx, Brooklyn, and Queensborough, but also to individual business houses, where the volume of the freight justifies such a step. Great retail stores, such as Macy's or Wanamaker's or Altman's, easily would receive one or more of these containers each day. So would the important wholesalers, and all other considerable distributing concerns of the City of New York.

The containers placed upon the flat-cars at Croxton will quickly traverse the three or four brief miles to the water-side of Weehawken, just across from West Fortieth Street, Manhattan. Here they will go upon the huge floats originally built for the terminal movement of loaded box-cars but each easily adapted for the carrying of sixty of the five-ton containers. All the elaborate plans that have been made for the extension and development of the port of New York predicate the scrapping of this great harbor fleet of car-floats—some eight million dollars' worth all told. In this book I am aiming to show possible railroad economies, not expenditures. It is easy enough to depict elaborate plans which involve vast capital expenditure. We have had rather too many of these in this country in recent years. It seems to me that by far the best plans are those that give large operating economies with a minimum of actual expense. These are the sort that I am trying to show within these pages.

If the Erie plans will bring to each of its water-side piers in lower Manhattan some 7200 tons of assorted merchandise a day, against about 400 tons as at present accomplished by the old-fashioned and rather awkward device of ferrying the loaded cars themselves across the Hudson River, it would seem to be both a real efficiency, as well as a mere economy.

Carried out by other roads using the harbor-side of West Street, Manhattan, it would quickly become a vast efficiency—the storage of freight upon the crowded pier floors ended; motor-trucks coming in, receiving in a time always to be measured in seconds, rather than in minutes, the steel containers upon their stout chasses, and then departing in a quick and orderly fashion. J. J. Mantell, the New York manager of the Erie, who has created this new plan and now has its execution in charge, estimates that carried out upon the lines of his competitors it would mean that the railroads coming into New York from the west would need but seven piers instead of the thirty-five that they now occupy. Twenty-eight piers would be released for steamship service and the necessity of extensive, and expensive, harbor improvements deferred, for a number of years at least.

The container idea, having once come into the public eye here in the United States, has steadily and rather rapidly gained in favor. A gentleman in St. Louis has apparently gone the Cincinnati method one better by devising a steel container which is interchangeable not only between motor-trucks and railroad freight-cars, but from these chasses to barge or flat-cars, or into the hold of a steamboat. His scheme already is in actual use, although not in perfected form, in the Federal barge service established three years ago upon the Warrior River. Twenty of the big steel boxes were purchased for use there, and there they are still in use.

It so happens that the Warrior River barges have no deck-houses, merely open holds into which the coal from the Alabama hills can easily be poured or unloaded. To make "return load"—always that valuable factor in transportation, either water or rail—merchandise freight must be garnered in New Orleans. And an open-hold barge is hardly comparable to a box-car; not at least in the mind of a shipper, who has some lurking desire to have his goods arrive in fair condition at the far end of the run.

So the steel container, which H. W. Kirchner of St. Louis

has designed, came into play. It carries merchandise not only from New Orleans to Birmingham (just below Birmingham) but, atop of the coal, back to New Orleans again. The inventor has had no joy whatever in this very informal trial of his device. He would prefer to have his containers handled and placed in a more orderly and systematic fashion. Yet the fact remains that a beginning has been made in the actual use of the only practical binding force yet brought forward which looks to a physical linking of the several different arms of freight transport. Any firm believer not only in the theory of correlated transportation but also in the high values to be achieved by its practical application in this country cannot help having a joy in this Warrior River experiment, an experiment which sooner or later is to be extended to the similar barge service which the United States Government has now succeeded in establishing upon the Mississippi. It already has been shown on the Warrior River line that the container can, and does, cut labor costs at terminals all the way from sixty-five cents to four cents a ton—the time for unloading from twelve to twenty-four hours down to but one or two, at the most.

There is coming to-day in this country—slowly, but very surely—a reversal of the old-time tradition that the inland waterway is *per se* a competitor of the railroad. Many years ago the railroads themselves showed how small a figure a river or canal, always more or less subject to seasonal or weather influences, was to the steel highway as a competitor, while the attempts that have been made since then—and generally at large capital expenditure—to bring about the resurrection of the inland waterway as a competitor of the railroad have so far proved abortive.

But to regard the inland waterway as supplementary to the railroad, or the railroad as supplementary to the inland waterway—it is merely a choice of phrasings—is a very different story indeed. True it is that the statute laws to-day pronounce sternly against such a sensible, economic solution of a large

phase of our American transport problem. True it is that a good many other keen business men still can see the waterway in no other light than as a club over the railroad. True it is that a good many otherwise sagacious railroad executives can see the waterway as nothing but an obsolete agent of transport or as a foolish dream of visionary idealists. Yet the fact remains that the waterway does have its place in transport. The railroad has a place, and in intelligent analysis these places dovetail somehow, somewhere. They do not conflict. And the sooner realization is made of this, the better—for all of us.

Some day we shall have to change our statute laws and then, instead of barring our railroads from our waterways, we shall invite, urge, implore, and if necessary compel them to use these great natural arteries of inland transport, chiefly for the relief of their overcrowded rails, particularly the rail terminals. And how overcrowded these are yet to be, it is hard to realize in this present moment of industrial slump.

In that day the container is to be, as I have said already, the binding agent between these different avenues of transport. Its flexibility, its adaptability, its obvious economy are going to bring it into its own.

In the meantime great progress is being made in its development. A. H. Smith, the big, energetic president of the New York Central, with his usual verve and enthusiasm has taken hold of the idea and seems bound to put it over. Already he has had built ten steel units of containers four for passenger service and holding ten boxes each, and six for freight service and holding but six boxes apiece. The passenger service units are being tried out in the United States mail service; the freight-service ones are in experimentation by the American Railway Express. Just what will be the final development in operation of these units Smith himself does not know. He believes that the possibilities are almost too great for instant grasp. That is why he has his road and himself back of the new idea. He has watched it carefully, almost apprehensively.

Because of a certain indefinite fear that one of the great steel boxes might some fine day be hurtled from the platform of a car running at high speed and into some group of waiting people by the side of the railroad, he has caused extraordinary care to be taken to have them firmly fastened not merely upon, but into, the platform-cars. A long steel girder-side of the car does the trick, while in these days of bandits and rumors of bandits along the line the fact that there is no possible process of opening the steel door of the container-box once it is set into its place upon the car gives an assurance of protection to the merchandise that no other form of carrier can offer.

Here again the motor-truck correlates. In the first experimental trials by the New York Central of this forward-looking device, they have come into quick and easy terminal service; the big olive-green trucks of the United States Mail service and the deep-blue ones of the American Railway Express.

I began this chapter with the motor-truck. With the motor-truck I shall close it. It is the object of great dreams of transport. Yet these are not, after all, mere dreams. They are, as we have seen just now, the carefully developed plans of engineers long since become expert in transportation. I could have carried you much further into these plans—into their application for the relief of Philadelphia, whose great water-front along the Delaware is only reached by the box-car after miles of tedious switching through congested trackage, and where the motor-truck offers an almost immediate and a comparatively inexpensive solution of the freight terminal problem; into Chicago where the situation is nearly as bad; and into Boston, where it is considerably worse, and where again the motor-truck plus the container in terminal service is a veritable key to the problem. Further still could I have carried you in this discursion—to Baltimore, to Pittsburg, to Cleveland, to Detroit, elsewhere still. I have hesitated to weary you with too much detail. You have had enough to prove my points, while only space prevents the discussion of the financial

phases of this service, sometimes known as store-door delivery.

I shall admit that store-door delivery has no attractive sound to the practical operating railroad executive. He is gun-shy, tremendously gun-shy of it. And yet I do not wonder at that. Your railroader feels that sooner or later—and probably much sooner than later—the charges for this service would be tacked upon his shoulders flatly included within his transportation rate. Aside from that I think that he would welcome it distinctly. It would greatly simplify the traffic problems in and around his freight-terminals to say nothing of making vast savings in the use of his equipment.

Moreover the day is coming when he will be compelled to welcome it willy-nilly. For, in my opinion, the motor-truck will occupy a place in the railroads' necessities to-morrow only second to that of the locomotive itself. It represents the railroad's newest field of development, by far its largest field of possibilities. Remember that the pictures which you have just seen in some detail of the Cincinnati and the New York terminal situations are but two out of many of these possibilities. The others are so vast and so many as to be termed limitless. They represent progress—progress in the field of American transport as definite and as distinct as that which marked the coming of the locomotive. The years pass by. In them we do move. We do progress. And transport enterprise consists in translating vision to practical operation, along lines such as we just have seen. So shall our railroad of to-morrow be upbuilt.

CHAPTER XIII

THE TWILIGHT OF COMPETITION

THE distinguished Boston jurist who not so many years ago astounded and startled the entire nation by saying that he could save a million dollars a day in the operation of its railroads was quite right, even though not exactly along the lines that he then suggested. Mr. Justice Brandeis at that time proposed to accomplish his great savings—then roughly estimated at 2 per cent. a year upon the property valuation of the railroads of the United States—by radical operating economies. That these might be accomplished and in a large measure, I do not now doubt. In fact for several chapters past I have been trying to show some of the larger opportunities to be accomplished along these lines; economies that to-day might be effected upon our carriers were they possessed at this moment with the proper imagination and vision, aided by an Interstate Commerce Commission possessed of the same qualities. We have seen how, in a test long enough to be definite, the motorized terminals in the city of Cincinnati have saved the railroads there something more than a thousand dollars a day. This was just one typical congested American city. I have tried also to show how that plan, in the main at least, could be extended to other congested American cities. It would not take very many such terminal savings to make a fair fraction of the national economy once proposed by our distinguished jurist of the Supreme Court bench.

Similarly I have tried to show the economies to be accomplished in the most neglected field of our rail transport system, the branch line and local service: the electrification of lines,

the introduction of the gasoline-motor unit, both upon the rails and off, the steady refinement of the locomotive, the development of the all-important container. Yet even these by no means represent the limits of operating economies yet to be attained upon the American railroad. There are many other operating savings that might be made and that are not being made to-day. For instance the field of a more scientific train movement through better signaling is of itself a most fascinating one. The second important function of a railroad signal—second only to its all-important one of safety to human life and to property—is to keep trains moving. It is a poor business man indeed who does not recognize the high value of keeping all of his moving equipment as nearly as possible in constant motion and in this way holding down the cost of his overhead.

There are two ways to direct the movement of trains. The first is the one still most commonly in use upon the railroad of the United States, by the written instructions of the train-order; the other is by the indications of the fixed signal—upon the open line, generally the automatic block. For train-order instructions the moving train must either slow down or stop completely, but with signal indications it may keep moving ahead at a good pace. In the one case time is lost, in the other it is gained.

This may seem in itself a small matter, but much multiplied it comes to a real saving indeed. On a single important division of a single important freight-carrying railroad—the Susquehanna division of the Erie railroad, 140 miles of double-track—a careful test was made of the savings accomplished by the installation of electric block-signals within the first calendar twelvemonth after they had been put in service, supplanting old-fashioned manual block-signals. Over that division in a typical year there move the huge traffic of 2,322,070,451 ton-miles.

Under the manual block the year before, the Erie's train-despatching was by written train-orders sent by telegraph. The

division was divided into two dispatchers' districts, two men for each district, four men for the division, for each of the three eight-hour tricks, or twelve men for the twenty-four hours, in addition to two chief train-despatchers. Moreover the Susquehanna division had employed in the twelvemonth immediately preceding the installation of its automatic electric blocks 136 signalmen at forty-six intermediate stations who had been paid \$94,752 on the eight-hour day basis. Even then it had sought to economize by closing down a number of its block stations at night to make a little saving on its pay-roll, even though the net result was to make its blocks excessively long in those hours and so slow up and greatly delay its train movement.

Contrast this with a dispatchers' service of but six men—in addition, of course, to the two chief dispatchers—for the entire division with no signalmen whatsoever (aside from the telegraph offices open at seventeen intermediate points instead of forty-six as of old, where the retention of an operator and the written train-order system was imperative), and we begin to see real savings. The Erie people took that first year of their automatic block operation and compared it with the twelve months immediately preceding when they had moved 2,137,868,274 ton miles of freight traffic over the Susquehanna division. With their new kink in scientific railroad operation they were able not only greatly to reduce their operating force but to increase their ton-miles per train from 254,054 to 274,217, a very considerable efficiency increase. In other words they not alone made the valuable saving in time from having fewer trains upon the line—the actual saving in that first year came to 697 trains—but an operating cost of \$87,969. At the rate at which money was then worth, this was the interest on a capital investment of \$1,759,380.

Project this to the entire main line of that railroad, 999 miles from New York to Chicago; remember that we have been considering but one 140-mile division of that main line, and savings begin to multiply. If the proportion of savings could be

maintained the Erie would have been \$630,000 ahead on its main line alone; if it could be carried to its branch lines too, the figure would run into a million dollars or more a year. Yet the Erie is less than a hundredth part of the route mileage of the railroads of the United States, of which a comparatively small part is yet equipped with automatic block-signals. To say that our carriers might save a hundred million dollars a year by the use of modern and scientific signaling alone would probably be a conservative guess. A million dollars a day, Mr. Justice Brandeis! It begins to look as if you had understated, not overstated the savings to be accomplished by our national transport.

We have by no means reached our limits in operating economies. That our practical railroaders, under the fearful spur of a terrific demand for great retrenchments, have done much is not to be denied. In some things, notably the creation of the big car, the big locomotive, and the big train, they not only have accomplished marvels but to-day they have probably approached the extreme limits of efficiency, if indeed they have not already actually passed them. Recently they have increased the loading of the average freight-car and have speeded up its movement. On March 1, 1920, when the private operators took their roads back from the Government, they announced that they were going to try to make a "thirty-thirty" record—an average daily mileage of thirty miles (instead of the 22.3 which the United States Railroad Administration was then accomplishing) and an average loading of thirty tons (instead of the 28.3 tons which the Railroad Administration by almost superhuman efforts, including appeals to the patriotism of the shippers, had finally succeeded in reaching). Despite most unpropitious circumstances the railroad executives had virtually reached the mark that they had fixed for themselves when the industrial slump set in upon the land. And in a total movement of a million car-loads of freight a week (a fair standard for good business across the land) savings such as

these are the equivalent of many new cars, particularly so at the times when our railroads find themselves short of freight rolling-stock. In an earlier chapter I showed how rapidly our total freight-car equipment has declined—in three years more than 125,000 cars. Yet the saving of but a mile a day in the operation of each car of our existing equipment is equivalent to the addition of 100,000 cars to it.

Our railroaders are expert already in the efficient use of the somewhat antiquated tools which they already possess. I have said long ago that man for man they are not excelled anywhere in the world in the small technical details of rail transportation. Their expertness was won in a hard school. Since that day, fifteen or twenty years ago, when the running expenses of our carriers began their long uphill climb, these men have been forced to great operating economies merely to make both ends meet. They have gone the limit in these savings. Now they must have more tools, bigger tools, finer tools. They must have electrification, better signaling, newer and larger terminals. Remember all the while that if they do not have them, and have them soon, it will not be the railroaders who will suffer primarily. It will be the communities that they aim to serve. Bigger and more modern tools will serve, it is true, to bring vast economies, but they will also help bring the United States a better railroad service, which is a point never to be forgotten.

To many of these suggestions your typical banker would reply that they were fine on paper but that in reality they cost money, a commodity in which the average American railroad is sadly deficient these days.

Yet what better way to obtain the money to pay for them than to announce the decision to adopt them with the sweeping economies that would follow in their wake? If A. is the village grocer and B. the local capitalist, and A. wishes to borrow money of B., does he go to him and talk this way?

"I'm sorry, B. but I've been up against it a good deal lately; they've put a lot of new and unjust rules upon me that tell me

just how I must run every detail of my business. And things are going to get worse. I don't see just how I am going to pull through with my worn-out equipment and all."

A. never talks that way, not if he has any real hope of getting money out of the financier. He is more likely to argue after this fashion:

"Times have been pretty bad with me, to be sure, but I feel confident that I see daylight ahead. I've got to get some equipment, expand my business along lines that seem pretty sure to win, and turn some new tricks in my trade. Here's one or two of them."

That is the sort of talk that generally brings confidence, and with confidence, hard-cash loans. Our railroads might try a hand at it. If they should come with some pretty definite plans for the extension of electrification upon their properties, the modernization of their terminals, a better correlation between their service and those of the carriers upon the highways, the real development of the container system, better signaling, and all the rest of it, they might command better credit. Such things have happened. It is not unlikely that they would happen again.

There is one economy, however, that requires little or no plant expenditure—only vision for its introduction. All this while and I have not even touched upon it, the supreme economy which our national transport system may yet hope to accomplish.

For more than three quarters of a century we have had a great god in our American railroad policy—when we have had an American railroad policy. That god has been labeled "Competition." That he is a false god I should not be rash enough to say, for he is a very popular one, whose dignity is not rashly to be trifled with. But like some other forms of monarch, no matter how popular they may seem to be, he is a very expensive piece of property. Heresy? Not a bit of it! Listen to me.

On the outskirts of Vancouver, British Columbia, two great

railroad passenger-stations stand cheek by jowl. Each would easily serve a European city of half a million population. Stated in railroad terms it would not be difficult to operate from thirty to fifty passenger-trains each day in and out of either of them. Yet neither of these is the main passenger-station of Vancouver—that is the Canadian Pacific terminal down on the water-front, at which arrive and depart more than half of the trains that enter and leave Vancouver each week-day. At one of these two outer stations, that of the Great Northern, three trains enter and three leave each day: at its neighbor, that of the Canadian National, but two are operated in each direction. One can only guess at the overhead and operating coast for each passenger who uses these architectural extravagances. At the Union Station, in Washington, where monumental construction is a bit more justified, this cost for each through passenger is now thirty-four cents. The railroads that run in and out of our Federal capital must carry their passenger a considerable distance before they equalize and overcome this high terminal charge and begin to make a profit upon him.

It would be a matter of but slight cost and great economy to place a connecting track between those two Vancouver passenger-stations, consolidate the business in one, and abandon the other, as a passenger terminal anyway. It would have been a far greater economy never to have built either, but from the beginning to have operated the Great Northern and Canadian National trains in and out of the commodious and centrally located Canadian Pacific Station. A great capital outlay would have been saved.

Why was not this done, you ask? The answer is easy. Competition.

But Vancouver is in Canada, you insist. Very well; we shall hark to the vagaries of the Canadian railway situation at another time. For this come back across the international boundary. Spokane is not in Canada. It is a handsome, well-built city across whose civic heart there lies the disagreeable

barrier of three trunk-line railroads; parallel and from one to two blocks apart. The right-of-way and station of any one of them could easily have handled the business of the other two. And not only would a large capital outlay have been saved, but Spokane would have been spared the existence of two Chinese-wall embankments through her business center.

Competition—a great god, indeed! It is competition that keeps alive the farce of separate passenger terminals upon the harbor “moles” of Oakland, despite the fact that the trans-harbor ferry-boats that serve them use the same common terminal at the foot of Market Street, San Francisco. Competition makes two elaborate passenger terminals in Seattle do the work of one; keeps three stations alive and eating up overhead and operation in Los Angeles; runs to its *n*th degree of extravagance in the small city of Tucson, Arizona, where a magnificent edifice in a park—at first glance you would be sure to call it the town’s Carnegie Library—serves as a competing passenger terminal for a railroad which runs but two passenger-trains a day in and out of it.

West, you say? All right, come East. Within the last two years there has been opened in the outskirts of the city of Richmond, Virginia, a very expensive and elaborate passenger-station development for which there was no call whatsoever. It is the so-called Union Station of the Atlantic Coast Line and the Richmond, Fredericksburg, and Potomac railroads and replaces the badly located and inadequate Byrd Street Station which they had used almost since the days of the Civil War. That Byrd Street Station deserved to be abandoned does not come into the question. The point is that there was no need whatsoever to build the elaborate new station away out in the outskirts of the Virginia city. For Richmond also had upon her Main Street a comparatively modern station already used by the Chesapeake and Ohio, the Seaboard Air Line, and the Southern railroads which, with a slight adaptation and enlargement, could easily have been brought to meet the needs of the two other roads entering the town.

Why was this simple step not taken? Why not the large capital outlay saved? Competition. The Atlantic Coast Line felt that it could not have its trains entering and leaving the same station as its competitor in Richmond, even though it is doing that selfsame thing in Charleston, in Savannah, and in Jacksonville. Competition; competition and a little foolish pride.

"Pride; but not foolish," says the big railroad executive, who stands at my elbow and whose eyes fall upon these paragraphs. "It is this sort of pride, the pride built up from competition, that long ago brought our American railroads to their high standards of service perfection."

A pretty theory that, but will it last? What is the actual competition to-day between, let us say, New York and Chicago? They are two first-grade railroads of the highest type connecting these two chief cities of the United States and four more, of a second grade, yet in themselves quite excellent railroads. On each of the two first-grade roads there are five or six fine express-trains in each direction each day. Long ago we have seen in the pages of this book how each has one train making the journey in precisely twenty hours, to the exact minute, and how formerly these trains did the trip in eighteen hours, also to the precise minute. After the wise step of the lengthening of the schedules, these two American "super-trains"—I think that I may safely call them such—remained exactly the same on the two supposedly competing roads, despite the fact that the distance between New York and Chicago on the one is 911 miles and on the other 979. Why does not the Pennsylvania with its shorter route beat the New York Central on its schedules all the while? Is it because its mountain ranges take so much longer to traverse than the much advertised "water-level route" of the Vanderbilt system? Possibly, but I doubt it.

The real reason is that the schedules of all these so-called competing trains are regulated by agreement between the so-called competing roads. There is a multiplicity of these

agreements. The Pennsylvania has its own rails between New York and Buffalo, the two chief terminals of the original New York Central road, but it may not advertise to carry through passengers between these two cities, in exchange for which the New York Central will not advertise to carry through passengers on its own rails between New York and Pittsburg, the two chief terminals of the original Pennsylvania.

Competition? It is a neat phrase.

Similar minimum passenger-schedule agreements rule the service between Chicago and the Twin Cities (St. Paul Minneapolis), Chicago and St. Louis, Chicago and Kansas City, St. Louis and Kansas City, Chicago and the Pacific coast points—elsewhere across the land. When a few years ago the Post-Office Department sought to establish a really fast mail-train service between Chicago and St. Louis—a train that would make the 283 miles in six hours—it found no enthusiasm whatsoever for the project in the four so-called competing railroads that connect those cities and who long before had fixed their minimum running time between them at a rather leisurely eight hours in order to suit the necessities of the slowest and the most roundabout of the four. Eventually the Post-Office Department carried its point and the Chicago and Alton to-day carries a through mail train from Chicago to St. Louis in six hours and ten minutes. But the regular passenger-trains still remain at the old slow running-time.

These instances might be multiplied. Have I shown enough now to make my point? When you go between New York and Chicago on either of the two highest-grade roads that connect those cities you ride on virtually the same trains—the Pullman equipment that each carries is standardized down to the finest details—at the same rates of fare, in the same running time, and in and out of passenger terminals equally advantageously located. The only deciding points between the two roads are such minor ones as whether you prefer the excellent griddle-cakes of the Pennsylvania's diners or the excellent ham and eggs of the New York Central's; the scenery of the

Alleghanies or that in the valley of the Mohawk. Are these not rather fine distinctions to hold up as a real competition?

Competition did not bring the excellence of these trains, any more than it prevented the removal of their comfortable observation-cars a short time since, through agreement. Competition did not force the Santa Fé into its wonderful equipment of overland *de luxe* expresses with their whole fleets of solid compartment-cars. Competition has never given the United States a through train from the Atlantic to the Pacific. We have to go up north into our rather thinly populated neighbor's country, Canada, to find such travel boons. Competition has never given a really creditable service between New York and Montreal, the two metropolitan centers of the great sister nations of North America.

The idea that competition is an essential to real railroad service is gradually dissipating. People are coming slowly but very surely to realize that no public utility is in its essentials competitive. And this despite the fact that Congress through the expression of its Transportation Act has given a formal approval to the idea that the only thing that can save our sick man of America business is a retention if not an extension of our competitive system of railroading, through the adoption of a "competitive consolidation" plan. This is the scheme upon which the experts of the Interstate Commerce Commission have been engaged these many months past and of which the first outlines have recently been issued.

The very expression of this principle within the Transportation Statute shows that a huge extension of the size of our individual railroad units is now contemplated despite the fact, long since recognized, that many of them have already gone beyond the limits of efficient operating supervision and management. Upon this point alone a whole book might be written. It is sufficient here and now to say that, with a few exceptions that prove nothing whatsoever, the only railroads that are today being successfully operated in the United States are the small railroads (small in comparative sense at least), prop-

erties like the Boston and Albany, the Lackawanna, the Bessemer and Lake Erie, the Buffalo, Rochester and Pittsburg, the El Paso and Southwestern, to single out but a few—railroads operated as individual units and by men who are not only on their ground but in close and constant personal touch with every inch of it. That genius of American railroading, Harri-man, more than a decade ago recognized this point when he began the decentralization of his railroad properties, placing five presidents upon them west of the Mississippi River, each with all but autonomous powers. The Pennsylvania has more recently recognized it in the construction of four regional systems within its giant property, each in many essentials a separate railroad and to a large extent separately operated. It has made good beginning but has not yet gone nearly far enough. The principle stands recognized, however, that you can reach a point and pass it where your obvious economies and strengths of centralization are offset by the disadvantages of having created a top-heavy and almost unworkable machine. There comes a point in the growth of any railroad system toward mere bigness where, like the locomotive and the box-car, efficiency is passed and inefficiency comes in again.

In the Middle West there is a manufacturing city which in recent years has grown remarkably, both in population and in industry. In ten years the first increased from 35,000 to 99,000 people. It is served by two railroads, one a main line of an important Canadian property and the other the main line of a small and fairly local railroad. The lines of a very large American system are but fourteen miles away, cross level country. The first of the two railroads that actually enter X. is operated from Montreal, when it is not actually operated from London, England. Apparently it has not yet heard of the rapid growth of X., for it has done nothing whatever to increase its facilities to keep pace with that growth; even its officers rarely pay X. the honor of a passing visit.

The second of these two roads gets the business. Its head-

quarters are but sixty miles away. Its president, its general manager, its superintendent, and its traffic manager are vigorous young men who are forever running up to X, and dining or lunching with its Chamber of Commerce and its manufacturers—they call half of them by their first names. They are alert to the necessities of the town and of its people. But they operate a small railroad. They are not burdened with the detail or the worry of five thousand miles of line, or ten thousand or even twelve. It takes super-men to run systems such as these last. And (unfortunately, perhaps) we have not as yet bred super-men in the United States.

The road that is but fourteen miles away should have come into X. with its rails a full dozen years ago; it should, that is, if the competitive system is all that its friends proclaim it to be. But it, too, is managed from a city nine hundred miles distant. Its president is as near a super-man as I shall ever hope to know, but nine hundred miles is nine hundred miles, and the line that runs so near to X. is but a minor branch of a vast system that seemingly at least has hundreds that are more important. And so it loses the freight.

The mere statement that the large railroad cannot be operated intensively or otherwise successfully without personal contacts will be disputed bitterly. I shall be asked: How about Napoleon? Did he not succeed in inspiring a vast army with a morale that no other army before or since has ever had? Personal contacts were almost out of the question for him. Yet were there not men by the tens of thousands who had not even touched the hem of his garments or laid sight upon his countenance who gladly would have laid down their lives to save his?

To these questions the answer is that we have not as yet succeeded in breeding Napoleons very generally. We work with the clay that is within our hands. And our human clay works best at short range, and almost always the shorter the better. The president of a little railroad does not have to be a Napoleon to inspire confidence and affection and enthusiasm among his

workers. Almost any real man will do, if the road is not too big. And he will merely need to know his men, to understand them, and to let them understand him.

If this is true in the technical operation of a railroad it is even more true in another great phase of its management—its salesmanship. Long-range transportation salesmanship is to-day a real fundamental weakness of our American railroad. Let me illustrate. Here is its competitor in the form of a local truckman coming along and, if you please, not keeping within his proper economic bounds, but soliciting business up to a hundred-mile or a 150-mile haul. He probably is "Tom" to his fellow townsman, a personality, a real human being, and not a mere machine. A corporation is always at a handicap. And other things being equal, or even a little against him, he gets the business.

In earlier chapters of this book I have set down what has seemed to be the real opportunity for the redemption of the branch-line and local services of our railroads, by the use either of small electric or of gasoline-motor units, but in all cases with such a frequency of headway as to render theirs a genuine service. Yet I would not give a fig for such a step if it could not be handled for the railroad by a competent executive right on the spot—no matter now how small his rank or title as long as he has real authority to go ahead or act. A canny minor executive of my acquaintance suggests that the average division superintendent should be given large traffic salesmanship authority. There are some things against such a plan, and many things in its favor.

But it seems to me that the installation of a motor-bus service on a branch or group of branches of any railroad is a local salesmanship and an advertising problem, as well as a merely operating one. The schedules should be carefully thought out in advance, and with some regard to the convenience of the people who are expected to make use of them. They cannot be properly made from a hundred miles away. In fact it would be a good idea to have a neighborhood referendum in

regard to these schedules. As an advertising device alone it would be well worth while, while the trained soul of any good advertising man would suggest local "copy" for the newspapers of the vicinage calling attention to the safety features of the motor-bus upon the railroad as compared with that lack when the selfsame vehicle travels upon the high-road. Without such intensified study and promotion methods I cannot believe that the mere introduction of the small passenger unit upon our standard railroads is going to meet with any pronounced success, either for the roads or for their patrons.

Now we are dipping into the edges of a fascinating topic indeed and one that recently has sunk into a rut in the United States—transportation salesmanship. In these late years the traffic managers of our railroads have either become glorified rate-clerks or else trained special pleaders before the Interstate Commerce Commission or the State regulatory bodies. There is no department of railroading in which initiative seemingly has died so dire a death as in the traffic department. There, too, precedent rules, and seemingly with an iron hand. No man dares defy it.

The other day the British railways went back to their ingenious before-the-war plan of making very low rates for week-ends, but always upon trains that were not ordinarily crowded. If a man wanted to start out on a Saturday and return say on a Sunday evening or even early Monday morning, a most attractive rate lured him into the adventure. It was obvious that the rate would not be taken advantage of by business men—to the real disadvantage of the regular commercial rates—as little or no regular business can be transacted over the week-end; while a certain disinclination to ride at the high regular rates—high to-day in Britain, as everywhere else in the world—is overcome by the bargain-counter quality of the rate itself. And new riders are gained.

This is good business. It is real business. It is more;

it is traffic science upon a railroad. For it is the genuine creation of business.

A few weeks ago (January, 1922) the New Haven announced another extensive slash in its passenger-train service. Its service was already but a mere shell of what it was twenty, or even a dozen years ago. It gave decreased travel as a reason for the slash.

But what was the New Haven doing to gain new business? Was it advertising? Was it improving the intensive details of its service? Was it trying to induce people to go in odd hours upon its trains? Not a bit of any of these. It was reducing trains. It controls the night boats upon the Sound—and operates these upon the same schedules upon which they were operated more than fifty years ago, save as they gradually are being permitted to die of dry-rot and so are eliminated. For at least a quarter of a century not one improvement has been made in the operation of the Fall River Line. And even when the press of midsummer traffic forces a double service in each direction each night no one in the management has the initiative to suggest “staggering” the schedules so as to give any diversity of service whatsoever.

I should be the last to suggest that the New Haven make a low rate from New York or Boston for the Yale-Harvard or the Yale-Princeton games. It would be the height of absurdity to lower the rates when the traffic at full standard rates rises to a tidal wave which demands the full operating resources of the property for its handling; and that it always is well handled does credit to the New Haven’s potential powers of operation. Yet there are times when it might well afford to make an attractive excursion-rate between New York and Boston. Some of its existing trains between these two cities move at awkward hours and with an incredible slowness. They naturally are not crowded trains. An occasional attractive rate upon these trains alone might, and probably would, result in filling them to their capacity, while the people that

traveled upon them would not in any large measure be those that ordinarily travel at the regular rates. The success for many years past of the Pennsylvania and the Baltimore and Ohio in operating week-end excursions between New York, Philadelphia, Baltimore, and Washington ought to have been of some educational value to the New Haven, but apparently it was not.

I have no grudge against the New Haven. On the contrary, I have naught but sympathy for a railroad which earns upwards of \$60,000,000 a year from its passenger traffic alone and yet shows so little knowledge of fundamental merchandising principles. Yet it is all too typical of many of its fellows. In my boyhood days in northern New York the annual event of the autumn was the big excursion to New York City. It ran at half-price and in crowded passenger-cars—parlor-cars, sleeping-cars, and coaches by the dozens. It attracted people who never went to the big city on the regular trains and at regular prices.

It has been a number of years now since the last of these excursions was operated. The people who used to ride on them do not go to New York any more, unless perhaps by automobile once in four or five years. Their traffic is lost to the railroad to-day. When they contemplate the regular rates—twelve to fifteen dollars in each direction, in addition to \$3.75 for a lower berth each way—and put them alongside of that famous old round-rate trip of but \$7, they decide that it is easier to stay at home or wait until Uncle John buys his new flivver and then run down with him.

When the Interstate Commerce Commission, yielding to certain influences both within and without it, put up the passenger-rates, it felt gleefully that it had done a very clever thing. Never before had it shown so pathetically its lack of real vision in the railroad question. Freight traffic—not always, but to a large extent—must move, no matter what the rate. But passenger traffic is a temperamental and a whimsical thing

—never more so than in this golden age of the automobile. You may lead it to water but you cannot make it drink. You may put up the rates but you cannot make people ride. For a correct answer ask the executives of the New England roads who have been so steadily clamoring for passenger-rate advances. Already I have referred to a 23 per cent. loss in passenger traffic in 1921, as compared with 1920. It is impossible to debit this entirely to prevailing hard times. It comes in large measure from hard feelings.

The national feeling of resentment against the present passenger advances recently has found expression in the measure introduced in the United States Senate for the restoration of the mileage-book (also touched upon in an earlier chapter) as a low-priced inducer of travel at wholesale—a measure which at this writing seems certain of passage—with its rate to be fixed at three cents a mile or a trifle less. For once the Interstate Commerce Commission missed its usual astuteness in trying to gage the public demand.

Why not sell the mileage-book at a little lower cost than the railroad mile at retail? Can I not buy two dozen pairs of shoes for less than twenty-four times the cost of a single pair? And is it not good business anyway for a railroad to try to get its existing patrons to ride more miles as well as to gain brand-new patrons, along lines which I have already suggested?

In Belgium and in Switzerland one may buy the equivalent of a card-pass upon an American railroad, good for a week or a fortnight or a month, according to the price paid. During the extent of its life it is good for unlimited travel by the person whose photograph it bears. The French have an even better system. For a matter of five or six hundred francs one purchases a similar card which for the ensuing twelve-month gives the right, not for unlimited travel, but for the purchase of an unlimited number of tickets at one-half the

regular prices; after which, for the holder of the card, the game inevitably becomes one of buying enough separate tickets to beat the first prices put down for the card.

Transportation salesmanship?

Properly played it is one of the most subtle games in the world, and one of the most fascinating—and for the railroad, one of the most profitable.

We have seen a good deal in the public prints in the last few years about the prime necessity of nationalizing the railroad in the United States in a far more thorough fashion than has ever before been even attempted. One of the potential dangers which forever faces a land as physically great as ours is the inherent possibility of its falling apart through its sheer size and weight. Under certain circumstances it might not be particularly difficult for us to disintegrate as a nation into groups of separate States, in fact if not in name—groups of States not particularly sympathetic or coöperative. We have had in our history already one very tragic instance of this very sort.

In order that this ever-present potential tendency may be overcome it is highly important that every possible measure be utilized toward binding the country more and more closely together. Transportation—railroad transportation in particular—forms an ideal binder. Utilized to its fullest degree it means that New England will know California better, and California New England. And each, knowing the other better, will understand better, sympathize better, coöperate better. If Minnesota goes to Louisiana and Georgia to Montana, each becomes more understanding, more tolerant, more closely bound, in almost every conceivable fashion.

Passenger traffic, brought to a high degree of development, will make such understanding possible. Little else can do it even half so well. Freight traffic will not do it—not at least to any particularly large degree. A better circulation of national

periodicals will help; this ever-present problem of encompassing our perplexing problem of nationalization, of making a group of forty-eight separate States, separate in climate, in soil, and even to a perceptible degree in racial and language characteristics, into a more coherent and closely-knit state, was one of the most potent arguments advanced against the introduction of the postal zone system in this country.

But even the national circulation of publications will not accomplish quite as much as travel. The Easterners who journey to the west coast each winter are to-day full of understanding of the problems out there—what the Japanese question really means to the Californians and the whys and the wherefores of most of the lesser questions that perplex them. If there were as attractive rates from Los Angeles to Boston and New York as there used to be from Boston and New York to Los Angeles, the Californians might in turn be a little more tolerant at times of the political situation in Massachusetts or in New York. It is intimate knowledge that makes for real understanding.

To make my point even clearer let me take you far overseas with me—to Italy in the days before the coming of the World War. The Italian Government even then saw a most imminent necessity for far better national thought and understanding. How by practical planning could it best accomplish such a thing? A little study quickly enough showed how: by not only letting Italians see every corner of their land but by urging them to do so.

So a most attractive ticket plan was developed. In practice it worked somewhat after this fashion. A resident, let us say, of Milan, in the great high plains of the north of Italy, might have business which called him to Florence. When he went to Milan Union Station—or whatever it is that passes for a union station in Milan—the ticket-agent, who was well schooled in the active art of selling transportation, attempted to beguile him into buying a little longer ticket—to Rome, per-

haps. His bait, his selling ammunition, if you will, was a rate per-mile from Florence to Rome much lower than that prevailing between Milan and Florence.

Very well, suppose that our resident of Milan was prevailed upon to go down and spend that long-promised week-end in the city by the Tiber. Bargain-sales have always spelled attractiveness, to men as well as to women.

"If only you would continue on to Naples," suggested the ticket-seller, "you would find the supplemental fare so slight as to be a mere nothing to your purse."

Very well again. Date the pasteboard up to Naples. Perhaps it would be a little warmer, a bit more balmy down there anyway than in old Rome.

"From Naples to Messina, it is a mere nothing, and the climate is still lovelier, and the supplemental fare much less per mile than even that from Rome to Naples."

With the final result that the prospective traveler at Milan would probably find the Italian state railways about ready to make him a present of the island of Sicily if only he would have the graciousness, and the very good sense, to extend his voyage to and around that fascinating place.

Now turn that rule back. Henry Blank finds his way into the Grand Central or the Pennsylvania Station in the City of New York. He has a business errand which will carry him six hundred miles west of the Hudson River—for the first time in his life. He plans to go to Cleveland, stay two days there in which he will do the work of six, and then come right back to Broadway once more. But the ticket-seller—the expert seller of transportation—has studied the Italian school of railroading.

"Make it Toledo or Detroit," he hints, "and we will make the mileage rate from Cleveland to either one of those towns a flat three cents a mile, instead of the 3.6 cents which the Interstate Commerce Commission made the law of the land in August of 1920."

Blank hesitates. The ticket-seller does not.

"While if you can be tempted to go on from Toledo or Detroit to that smart young town, Chicago," he urges, "we will bill you at the intervening distance between them at a mere 2.75 cents—a historic percentage, you will remember. From Chicago to the Missouri River, two and one half cents a mile. Two cents a mile flat on the next big lap, down to El Paso or Albuquerque or over to Cheyenne or Denver; lower all the time you go further west—until that New York-Cleveland ticket that you are buying of me now, Mr. Blank, will carry you all through California at a cent and a quarter a mile. You cannot afford to stay out of California at such a rate."

And there is a strong probability that he will not.

My friend, the old railroader, snorts at this suggestion:

"What do you think that the California railroad commission is going to say about some fellow from Boston riding all over their State at a cent and a quarter a mile, simply because he bought a ticket from South Station down to Providence, and had it extended once or twice?" he asks. Then adds: "I don't *think*; I *know*. They will say, 'Very good, Mr. Southern Pacific, if you can afford to carry him at a cent and a quarter a mile, you carry the man in Stockton, who wants to go up to Sacramento or to Marysville, at the same identical rate per mile. That's fair, and it's our business to make you be fair!'"

At first glance it would seem as if the venerable traffic man is right; a second and third one however will show the possibilities of his being quite considerably wrong. If the railroad commission at Sacramento has one half the advertising sense that the rest of the Californians possess it is going to recognize that here is the way to popularize its States—in the best and broadest sense of the word, to nationalize it. Moreover, it will know that the man who buys a ticket from San Francisco or Stockton to Sacramento or Marysville will have his own opportunity to extend it, in just the same way and upon exactly the same basis. He can go riding all over Cape Cod at a cent and a quarter a mile, while the people

around about him will be paying their 3.6 cents. *Quid pro quo*; turn about is fair play, and all the rest of the fine copy-book maxims of our boyhood days.

In front of me lies the hand-book of the Italian state railways in those blessed days of before-the-war. From it I find that I could have started from the Milan Union Station and made a circular trip through Bologna, Florence, Rome, Pisa, Genoa, and Turin back to Milan again for 157.5 lire, first-class or, at the then rate of exchange, a little more than thirty-two dollars. As a matter of fact the ticket sold at exactly the same rate from any other point upon this designated belt and from it was good in exactly the same way. We are using Milan here merely as a convenient point from which to study the system.

But suppose the ticket-agent in that brisk manufacturing city of the North sold us Venice—a little side-trip off the main circular route, up the line from Padua and back again to Padua before we were ready to go on to Florence and to Rome. The inclusion of the side-trip added but 8.9 lire to our original pasteboard, or less than two dollars. Suppose that we wanted not only Venice but Naples—this last, considerably more of a side-trip. We could retain Venice and do Naples as a side-trip from Rome, and still have our first-class round-trip ticket, going one route to Rome and returning by another and entirely different one, at 187.9 lire, or about \$37.50, as we were then wont to figure it; while the period of availability of the ticket was lengthened from thirty to forty-five days.

Here is another point, seemingly unimportant, but really filled with a good deal of importance, particularly when one comes to view it from the standard of transportation salesmanship. In the days before the war the various parlor-car services of our railroads, whether owned and operated by the Pullman Co. or by the railroads themselves, had a minimum seat-rate of twenty-five cents. War-time administration ended this and fixed the minimum at fifty cents, to which presently was added a 50 per cent. surcharge for the benefit of the railroads, with the result that if a passenger is to ride but a mere

fifteen or twenty miles in a parlor-car he is charged the outrageous figure of seventy-five cents for the privilege.

These short-haul riders of other days came to a considerable total. They helped fill the parlor-cars and so not only to add an attractive revenue but to maintain a service which, in many portions of the country at least, is a necessity. Yet apparently no one either in the railroad field or in the Interstate Commerce Commission has enough vision or salemanship to order the minimum rate reduced. It goes, like a good many other things in the railroad situation to-day, by default, and just so far lowers the service standard.

Our railroads in recent years have faced a new and formidable competitor in the rapid development in the United States of the automobile and, in consequence, of the improved high-road upon which it is wont to travel. I have called attention to this point before and wish again to emphasize it. Whether the privately owned and operated motor-car or the motor-bus operated for public patronage, it is a serious competitor to them. Yet how have they faced its competition, its steadily increased lowering of their passenger business? Have they met it with return competition? Alas, no. The railroads either have railed against the new-comer in their pastures or else have merely reduced their service, with the immediate result that still more traffic is diverted from their trains. In some parts of the country this loss of traffic has come to a serious pass. In certain portions of the State of New York the local service of the railroads is now reduced to a point lower than it has been for the last sixty years.

The British railways have also had to face the same sort of competition. It grew particularly acute in the three months of the great coal strike of 1921, when they were compelled to reduce their services of every sort to an absolute minimum, and the motor-bus or char-à-bancs burning an entirely different sort of fuel jumped into the breach in every corner of the United Kingdom and rapidly increased its services. But as

soon as the strike was broken and the railways were enabled to return to their normal services they began to meet competition with competition. They underbid the *char-à-bancs* for traffic, in both rates offered and service rendered, and they have quite regained their own again.

Yet they did not wait for this crisis to calculate the passenger possibilities of the motor-car, particularly in regard to their own traffic. When the gasoline-propelled unit was still a strange new-comer upon the highways the English railways were beginning to adapt it to their uses and to correlate it with their services upon the steel highways, with the result that to-day in almost every corner of the British Isles gasoline motor-cars and *char-à-bancs* are being operated in connection with and as feeders to steam lines. In a similar way two great French railroads, the Paris-Orleans and the Paris, Lyons, and Mediterranean, have long since correlated the motor omnibus with their steam lines—in the one case in the district of the Touraine and in the other in the Fontainebleau, the Alps, and the Riviera territories.

The opportunities for such correlated services are just as great to-day in the United States as in Europe, if not greater. The railroads that serve the Catskills, the Adirondacks, the White and the Green mountains, the Rockies, and the Sierras could well afford to develop motor-bus routes as auxiliaries to their routes that already reach into these charming fastnesses. The Santa Fé and the Southern Pacific complain of the competition of the motor-bus along their lines that parallel the Pacific coast, yet have done nothing to meet such competition or to correlate with it. To-day the Northwestern Pacific terminates in the small city of Eureka, in the beautiful Humboldt County section of California, two hundred miles north of San Francisco. By the creation of a motor-bus route almost due east to the line of the Southern Pacific near Dunsmuir, a circular trip of unusual variety and beauty could readily be established. The Southern Pacific has already made beginnings along this line by the establishment of a highly

successful rail and automobile route through the Apache Cañon. The success of this route, even though its beginnings are none too conveniently located, ought to encourage the establishment of others. The opportunities are real—there and all the way east of there, right to the Atlantic Ocean.

One of the most pathetic features about our American railroad situation is the almost entire submersion of the traffic manager and the things for which he is supposed to stand. Upon most of our roads the selling of transportation rapidly is becoming a lost art. There are a few exceptions of course, roads which, like the Santa Fé, still show a genuine belief in passenger traffic and its possibilities by not only advanced advertising methods but by a careful attention to the infinite details of the service. But these roads are very greatly in the minority. The majority of the lines are seemingly quite content to sit supinely and indifferently take such traffic as may be forced upon them.

In a recent issue of the "Railway Age" a railroad officer comments quite sharply upon this fact. He shows some of the difficulties that the average passenger meets when he is forced to ride upon trains that may be designated as "fairly second-class" in their accommodations, calls attention to the apparent indifference of the employees, and then proceeds to comment as follows:

As a matter of choice, or because their work requires it, general officers, and even the more important division and subordinate officers on some roads, travel in business-cars isolated from contact with their roads' patrons, unable to learn, or indifferent to the opinion of the service their roads are rendering to the very people who furnish the revenue that makes the roads' operation possible.

It should not be lost sight of that while the public judges the roads through its most intimate contact with them (as passengers), it is this same public that in the final analysis will determine

whether the roads are to continue under the present form of management and control or whether some other method of operation shall be experimented with. It is also this same public which, as individuals, pays the country's freight bills as shippers, consignees, or consumers.

Assuming that it is a fact that almost all competitive tonnage is secured through "good-will," is there any better way in which to impress a prospective shipper with the road's efficiency than when he is a passenger? The things that were observed on this 8,000-mile trip seem to indicate that at least some managers do not appreciate the value of comfortable, courteous passenger service as a feeder of freight tonnage, or that they are unfamiliar with the manner in which their passenger service is being handled.

This extremely fair-minded critic of the railroads then goes on to call attention to the utter absurdity of the roads' attempting to operate on trains made up of perhaps but two Pullman standard sleepers and the rest very largely tourist-cars, day-coaches, and dining-cars that are attempting in their service and prices to rival the best hotels across the land. There is indeed much meat in what he says. The dining-car service is in a great many cases absurd.

It is apt in many cases to convey an impression of innate snobbishness, certainly not one of economy. It takes from ten to eleven men to operate an American dining-car of equal or less seating capacity than its fellow of Continental Europe, which rarely has more than four or five servants. The prices, to the average man traveling across the land and accustomed to stay in hotels of even a fair grade are not unreasonable. They merely are unflexible to the man or woman of limited means who is forced to ride long distances upon the cars and who is given little or no opportunity to alight at refreshment stations upon the way for the purchase of inexpensive food-stuffs. The *table d'hôte*, which is used so successfully and so economically (both from the point of view of the railroad as well as of its patrons) on the railways of France and other Eu-

ropean countries, has been given few fair trials in the United States. The New Haven once had a famous "fixed price" dinner; so did, and I think still has, the Milwaukee. The Baltimore and Ohio to-day offers what it calls a "commercial traveler's club luncheon" for seventy-five cents, which I honestly think is the best meal in the country for that price. But these are the exceptions. The rule is a cumbersome dining-car arrangement, with the itinerant eating-place attempting to rival a city restaurant in the variety of its offerings, at a vast cost and annoyance to most of its patrons as well as to itself.

I should be inclined to agree with the gentleman writing in the "Railway Age" as to the complete neglect of the executive officers of our railroads of a proper supervision of their train service had there not come to my eyes recently a confidential report made to the president of a large road from one of his secret agents. This secret agent was much different from the average one—hired usually to assist in the detection of some employee or employees suspected of pilfering or other malfeasance. She was a woman of good station in life, a fairly experienced traveler, and by temperament inclined to be both generous as well as honest. For weeks she rode up and down the lines of that railroad and its competitors—not upon a pass, oh, no—but with nothing whatsoever to distinguish her from other travelers. Her comments upon the service, shrewdly feminine, went to her employer in the form of the confidential report which was brought to my attention. The mashed potatoes in Dining-Car 4809 were weak and watery. ". . . The chef should have known enough to have prepared them in milk or cream, not in water," her woman's judgment added. The head porter in the big new hyphenated hotel in P. advised her to go to a competing point by the X. line and not by the road that was employing her. There was a discourteous ticket-agent in the office at G. And so it went.

Here was a railroad taking a primary but a genuine step to-

ward selling its transportation to its patrons. It is not enough that the railroads are making better "on time" records with their trains—their press-agents are putting out reams of propaganda these days to that effect: there is something more to real service than this. Return once again to our friend of the "Railway Age." He says:

Do railroad managers expect their ticket-sellers to be salesmen in the generally accepted meaning of the term or do they reserve this function for passenger agents? A man who found that he must make a hurried trip to a destination several thousand miles distant called at a consolidated ticket-office to purchase his ticket. The purpose of his trip required that he visit certain cities en route but he found that the ticket seller was unable to tell him how to arrange his trip so as to include these cities. He consulted other ticket-sellers with no better success and then informed the writer of his predicament. The writer telephoned to the passenger agent of a road over which a portion of the trip must be made and a traveling agent was immediately despatched to the prospective passenger's office who furnished him with all the information he required.

This prospective passenger was a man who had held important positions in the engineering department of railroads for years, but he did not know that railroads provided this service for prospective passengers. Subsequent investigation disclosed the fact that travelers are entirely ignorant of the services that city, district, and traveling passenger agents are prepared to render them.

The answer to most of these criticisms is again that some twenty years ago the traffic men ceased to be a really vital figure in the organization of most of our American railroads. For more than twenty years they have been forced willy-nilly into policies of the most stringent economy, with the very natural result that the operating man, the man who could be counted upon to make the largest economies in the operation of the railroad, came into his own. To-day there is hardly an important railroad in the United States which is not headed by

an operating man. Operating men do not as a rule have much traffic sense. It is a faculty that is born in some men, while others can never even understand it. It is a good railroad operating man indeed who can manage to acquire a real respect for transportation salesmanship and then give a real coöperation in attaining it. Yet that is perhaps as vitally an important thing as our railroads need to-day.

For despite large measures of criticism that may be leveled against it, the railroads of the United States are beginning more and more to tender a real degree of service once again to their patrons; not of course to be compared with that which they gave ten or twelve years ago. It may be many years before they attain that standard again, if indeed ever they do. But the service that they *are* rendering they are failing utterly to sell to their public, all for a lack of real salesmanship. The average man in the street neither knows or believes that the roads have made large strides in the restoration of many of their services, both freight and passenger. In fact in his mind there has arisen a certain intangible but fairly fixed idea that our railroad structure, both in its plant and operation, has begun to become something dangerously near obsolete. The skillful propaganda of the advocates of the motor-bus and the motor-truck, the fanciful tales spread about the future commercial possibilities of the *aéroplane*, have begun to make him inwardly question whether the steam train is not about ready now to be classed with the stage-coach and the canal-barge. The railroads of the United States in a supreme—and possibly a final—opportunity for setting forth the many, many merits and strengths of their present position, with a few conspicuous exceptions, are failing to grasp that opportunity. They are neglecting transportation salesmanship.

We have seen in this book, and we shall continue to see, how traffic has been created upon the railroads overseas. In the past we have built railroad traffic here in the United States. In our railroads of to-morrow it will be done again. Something of the past can be repeated to-morrow. Witness Atlan-

tic City; originally a lightly-built summer resort which did all of its business in about two months of the year and hibernated for the other ten. It was the railroad—railroad coöperation, if you please—with its advertising that made Easter upon the Boardwalk one of the great stated functions of the American social calendar. Railroad advertising made Glacier National Park; to an appreciable extent the other great National Parks across the land. Railroad advertising made the Northwest, the Southwest, California, Florida, the New Orleans Mardi Gras.

The most thoroughly advertised railroad upon the North American continent is probably the Canadian Pacific. The next is the Santa Fé. And it is estimated that of the round-trip tickets sold in an average year from Chicago and points east to the Pacific coast more than 70 per cent. of them read Santa Fé one way and Canadian Pacific the other. The best advertised single train in the land is the Twentieth Century Limited. And it is, beyond the shadow of a doubt, the best patronized one. Does transportation salesmanship pay?

Let us return to our muttons. We were talking of competition. It has been said that it is competition—and competition alone—that has forced transport salesmanship. Undoubtedly this is partly true. It is one of the best arguments that can be made for the retention of our extravagant competitive system of rail transport. But upon analysis it will be seen that the advertising examples that I have just shown have been directed almost exclusively to the promotion of through long-distance trains. I have not seen the Santa Fé or the New York Central or the Canadian Pacific often stressing the advantages of travel in their short-haul, non-competitive territories. Last spring, and again this, the hoardings of London Town were setting forth the glories of the immediate vicinage in such color and beauty and appeal that one wished to close down one's desk and hie himself off into the open country—a ride on the train, and a ride on the train in again.

The French railways are non-competitive, yet bow to no one in the thoroughness and the attractiveness of their advertising—the quality of their transportation salesmanship. It is a part of their intensive railway management. Is it not about time that we heard a little more of intensive management of our railroads, both in their operation and in the solicitation of their traffic? Here is a vital principle of transport in the United States—speaking generally now and not specifically of the railroads alone—that apparently has been considerably overlooked in recent years. In a large sense it is an economy as well. I think that I have shown by this time the economy and necessity of systematically developed transport applied evenly to the entire land, and not, through the efforts of that false god of competition, spread thick here and thin there.

This vital principle was completely overlooked in the minds of the politicians who as a tentative American railroad policy gave us a “competitive consolidation” of our roads. Seemingly competition was indeed their god.

“How can such fine industrial cities as Rochester or Akron or Dayton or Grand Rapids thrive and continue to thrive without railroad competition?” they asked, apparently forgetting that for many years such fine industrial cities as Bridgeport, New Haven, Hartford, and Providence have not alone lived but thriven and continued to grow greatly without railroad competition. In the old days before it had entered upon its financial skylarkings and was content to remain a well-ordered servant of its community, the New York, New Haven, and Hartford railroad showed that it could render in a non-competitive territory service quite as good as its fellows of the competitive territories. Competition was not the thing that made or broke the New Haven service; it was income, outgo, human morale, even regulation, if you please, but not competition. The vision of Charles S. Mellen that New England should one day become a great non-competitive railroad territory was a very real and a very far-sighted one. It is only

with the method by which he sought to bring it into actual being that one may beg to differ.

In no other land of the world is the competitive theory in transport being pushed forward to-day. In fact the tendency is decidedly in the other direction. It was to observe this tendency—the distinct effort to eliminate competition and bring coöperation and harmony between European railway properties—that I journeyed overseas not long since. And in the next of these chapters I shall set forth some of my observations on the regional railway situation in France (where it has long obtained) and in Great Britain (where it is just now being established), particularly as our future prospects here in the United States are affected.

In the meantime, our competitive system continues to remain one of our pet railroad extravagances. Remember that the mistakes that Mr. McAdoo made in his direction of the Federal Railroad Administration were quite overbalanced by the obvious economies that he was able to make the moment that he had eliminated the competitive factor in our national transportation machine. As he was able more and more to overcome the long established competitive feeling between the railroad executives—to no small extent, perfectly natural and human personal jealousies—the more he was able to effect and extend these economies. The Railroad War Board which the railways had appointed early in 1917 and which was in many ways an anticipation of the coming of Federal control, despite its good intents and honest endeavors and real results, was constantly hampered by this competitive feeling even between its members. Yet as we have seen it lacked the autocratic power of the government director-general, and so it failed and had to be replaced. And the obvious war-time economies—the direct routing of traffic, the pooling and interchange of equipment, the joint representations and the like—came into being

To accomplish these things nationally and permanently, to lessen competition rather than to increase it (no sane man imagines that we are ever to succeed entirely in removing the

competitive element), may yet mean the complete reorganization of our national railroad system. Yet even so radical a step need not be regarded as either fatal or impossible. It is entirely within the possibilities to-day that our privately owned and operated railroads, at least as they are at present constituted, may fall. There is but little in the present situation to make one optimistic as to their future success, along the present lines at least.

The sole alternatives to private ownership and operation are government ownership and operation. To the majority of Americans the very idea of a further governmental control is extremely distasteful, to put the matter mildly. To them railroad nationalization is a very real menace. Yet the menace cannot be avoided by merely singing a song of hate about it. It can be overcome and finally prevented by some definite national plan or policy in regard to our roads—a simple thing in which for a number of years past we have been sadly lacking. If such a plan means their radical reorganization we must begin. And the sooner the better.

CHAPTER XIV

THE REGIONAL RAILROAD OVERSEAS

THE beginnings of the railroad across the Atlantic were so very slightly in advance of our own that they may be regarded as contemporaneous. In Great Britain, where the railroad as we know it to-day was born, the conditions of its infancy were much the same as in the United States. In Continental Europe they were considerably different. There military necessity quite overbalanced immediate commercial needs. There the first railroads were dictated by the international strategists. From that day to this their expansion has been directed by the same necessity.

Yet granting at the outset that the needs and opportunities of the European railways are in many ways different from those of ours, there remains the fact that to-day there is much over there that our railroaders of the United States might and should learn. There is also a good deal that the European railroad men might and should learn from some of our big operators and traffic experts—but that phase of the problem is not germane to this book.

It was to study some of the features of European railway operation that might be applicable directly to our railroads of the United States that I journeyed not many months ago across the Atlantic and down the westerly nations of Europe. Central and Eastern Europe still were in transport chaos and so could be expected to give little or nothing to one who wished to see their railways under anything even faintly approaching normal conditions. But in Great Britain, in France, in Spain, and in Italy, the railways were functioning well—extremely well, when one came to consider the very great burden so recently put upon them. The last two of these four nations may, however, be dis-

missed immediately from present consideration. Neither the density of population nor the traffic conditions of either Spain or Italy makes their transport problems of great interest or value to the United States. But Great Britain or France may hold the key to a real solution of our most vexing transportation problem of the moment.

In area these two closely built and industrial nations are not far apart. Ireland is not included in the comparison; in this chapter, however, we are not going to give consideration to the Irish railways. They too are not germane to the discussion, even if conditions in Ireland were even approximately normal to-day, which decidedly they are not.

The area of France is roughly speaking about equal to that of our five great industrial States reaching from New York to Chicago—New York, Pennsylvania, Ohio, Indiana, and Illinois. This section of the United States contains but about thirty-five millions of people, as compared with forty millions of French, yet it has approximately twice the railway mileage. The French have buttered their area pretty evenly with their railway transport. We have not. In these five industrial States of ours there is not only in many cases gross duplication and excess of plant—in most cases due to the effects of overstimulated competition—but in other cases considerable territories even to-day inadequately provided with railroad facilities. Our bread is by no means buttered evenly.

Neither is Great Britain's. Like ourselves she built her transport plans to meet the exigencies of actual conditions from year to year. Add to this her very irregularity of conformation; her chief city, and forever her traffic hub, situated nowhere near the center of the congested island, but almost in an extreme southeastern corner of it; her other great cities, seaport and inland industrial centers, scattered here and there and everywhere as the chance fortune of long centuries dictated and separated by high ridges of mountainous hills. Take conditions such as these and you have the beginnings of a transport problem that even at the outset would bewilder the wisest of

traffic experts, given the rare opportunity of devising an entire new railway system for the United Kingdom.

Of course, no such wise or scientific scheme of planning her railways was ever possible. They grew, as I have just said, out of necessity. From the crude beginnings of the Stockton and Darlington and the Liverpool and Manchester, almost an even century ago, they advanced clumsily until nearly twenty years ago, when the last of the trunk-lines forced its way into London and the competitive development of the British railway system was virtually ended. The strategy of thrusting a new line here, of building a connection there, of piercing into this town or that so as to get the business away from the other road, then became history. Thereafter the chief problem of the British railway manager, like that of his fellow executive in the United States, became that of supplying proper transport to a nation that refused to "stay put," but insisted upon growing, even to an unthinkable size. In the years of its railway development the population of Great Britain has increased from fifteen or sixteen millions to well over forty-two. In a single one of her cities more than seven million people are now resident.

Yet, as might have been expected the clumsy competitive system of building railroads has not given her a really adequate rail transport plant. Her bread also is extremely badly buttered. Great industrial sections as those around London or Birmingham or Liverpool or Manchester or Sheffield, her coal districts, are oftentimes much more than adequately provided with railways. And there still are sections of the small island—to traverse its extreme length one goes a distance roughly equal to that from New York to Buffalo—which are not even to-day properly provided with rail transport. These are, it is true, rather thin pickings. The competitive system has wotted not of them. It never spreads the butter evenly. The butter goes where it is worth the most, and nowhere else. Too much butter goes in certain localities. England has begun to learn that lesson.

In France the development of the railroad proceeded far more slowly. Such ever was the way of the French. From the beginning their Government took a firm hand in the matter. It saw that French railways were planned, primarily from the military necessities of the country but also from its many peaceful ones. If all of this at first had the effect of retarding railroad construction it also has resulted in giving France the best national plan of rail transport in the entire world. In 1842, sixteen years after the beginnings of railway development in Great Britain, it was still possible in France to determine in what definite direction her principal lines should be put down. In that year a statute was passed settling this vital question in so comprehensive and generally satisfactory a fashion that the uneconomical duplication of the rail systems of both the United States and Great Britain was almost entirely avoided; while within the next three or four years definite beginnings were made in the regional allotment of the land to the several railway systems, or *réseaux*, which have continued with but one or two important changes down to the present day.

In contrast to England and Scotland, France presents an almost ideal field to the primary planner of railroad lines. If Paris, forever her chief commercial and social hub, is not in the precise center of the republic, it is at least near enough to permit the devising of a railway plan in which most of the chief lines form roughly the spokes of a great wheel radiating out from Paris as a hub. Five of the regional systems of France, her *réseaux*—the Nord, the Est, the Paris, Lyons, and Mediterranean, the Paris-Orleans, and the Etat—operate these great spokes. The Nord takes the segment of the wheel which touches upon the English Channel, from Le Tréport-Mers all the way east to Dunkirk and the Belgian line. To the east of it lies the Est, touching the Nord at Soissons and Laon and after also touching the newly-acquired lines of Alsace-Lorraine reaching as far into the southeast as Belfort.

The Paris, Lyons, and Mediterranean has but two spokes of

the wheel into the Paris hub but it is the largest of the privately owned French railways, reaching from Belfort to Cette upon the Mediterranean shore and serving between the Swiss and the Italian gateways to say nothing of the Rhone valley and the Riviera. Immediately next to it in turn is the Paris-Orleans, with Toulouse and Bordeaux as its chief southerly terminals. At these cities it joins the southerly Midi system, which also meets the P.-L.-M. at Cette.

The Etat or State railway with its lines from Paris to the west and the southwest of France completes the great railway wheel. A little more than a decade ago it absorbed the fairly important but always unprofitable Ouest system. Up to that time the government railway had been the least important of all the French properties. Its lines, reaching down chiefly into the rather poor districts of the Vendée and the Charente, were distinctly unprofitable. In 1908 a French gentleman by the name of Georges Clémenceau succeeded in extending the beneficent influence of the state to the almost equally unfortunate Ouest system. Since then the State railway of France has become distinctly important, geographically and politically, but not particularly so in any other way. Its annual deficit has never been overcome. Matters have now come to a point where it is proposed that system be leased to a private corporation for operation. The government can no longer carry on with it. Its suburban service alone sustained a deficit of 100,000,000 francs in 1921.

At the present moment, however, all the French railways are operating at a loss variously figured at from a million francs a day upward. Since the beginning of the World War, a total deficit of something considerably more than a billion dollars has been achieved. Yet the roads themselves are still paying their dividends—the privately owned and operated properties of course. These are guaranteed by the Government under special legislation that goes as far back as 1857. In the early days of the recent war, when even the formerly profitable Nord, Est, and P.-L.-M. began to run toward heavy

deficits, special legislation was hurried through by the Government to insure continued interest in the proper operation of the essential lines of rail transport by the simple and entirely human process of maintaining the dividends, even though the taxpayer paid the difference. The difference steadily grew greater. Wages increased 327 per cent. in six years, the staff—due chiefly to France's very literal interpretation of her new eight-hour law—from 355,000 to nearly 500,000, about 41 per cent. And despite an increase of 25 per cent. in freight and passenger-rates—afterwards increased to a total of 70 or 80 per cent. for passenger and 140 for freight—the operating ratio of her railways swung from 57 per cent. in 1913 to the ridiculous and impossible figure of 125 per cent. in 1920.

Important and vital as these things are, however, to the Frenchman, they have no great concern with the phase of the international railroad situation that is under our immediate scrutiny—competition, and with it the inevitable and wasteful duplication of lines and other features of any national transport plant. If the French railway system had been burdened with these wastefulnesses, one shudders even to think of the consequences. The French railways would not then be close to bankruptcy, they would be entirely involved in it and so completely broken that all France would be prostrated—the bitter tragedy of Russia repeated along the west coast of Continental Europe.

In my opinion it is because of the simple and entirely economic placing of her railways that they have been enabled to withstand at all the terrible and multiplied burdens that have been placed upon them in the last seven years. The judgment of the men who first planned their general locations has been completely vindicated again and again in the really superb way in which they bore their all but overwhelming war burdens, and more latterly in the way that they have handled the almost equally important and vexing problems of the after-the-war period. Both speak volumes for the inherent morale of the

French railways, to say nothing of the grit and the endurance of the Frenchman himself.

We started a moment ago to show how these regional and generally non-competitive railways of France were laid down upon her map. We likened the main lines of the Nord, the Est, the P.-L.-M., the Paris-Orleans, and the Etat to the spokes of a great wheel with Paris as their hub. Outside of these five greatest regions there lie the two others—the Midi and the recently acquired lines in Alsace-Lorraine. The first of these, as we have just seen, occupies important territory just north of the Pyrenees; the second is indicated by its name. It has not yet been determined what shall be the ultimate operating plan of the lines in Alsace and in Lorraine. They may be parceled between the Est and the P.-L.-M., but it is more than likely that they will continue to be operated as a separate system. France long ago saw the viciousness of bringing too large a railway property under a single operating direction.

The plan is almost perfectly regional. The only important exceptions are where a long arm of the Paris-Orleans goes at right angles to the parent stem and up into the heart of the Etat territory (to Nantes and to Brest), and where the Etat in turn has a rather roundabout line from Paris to Bordeaux, the chief external point of the Orleans system. (It is possible that in the contemplated return of the Etat to private operation this line may be handed over to the Paris-Orleans. It would be a logical step in the French regional plan.) Still one almost always goes to Nantes upon the P.-O. and rarely ever to Bordeaux upon the Etat, while to Marseilles or to Lyons there is absolutely no alternative to the P.-L.-M. To go to Rheims or to Strasbourg one must use the Est, to Boulogne or to Calais the Nord. There is no choice other than the Etat for reaching Rouen or Le Havre from Paris.

Here then is regional railway operation brought to almost perfect operation, with competition all but eliminated. For remember, if you please, that it never is completely eliminated.

Even if one were to go to the final degree of consolidation and centralization, competition would not be entirely gone. In France, even if the Paris-Orleans no longer reached Nantes or the Etat Bordeaux, even if every mile of rail were brought under a single autocratic and absolute head, there would remain the competition of her unified railway with those outside the republic, and within it the natural competition, let us say, of towns north of Paris with towns south for the traffic of that metropolis; east would forever be pitted against west. You can no more entirely remove competition in business than you can the risings and the settings of the great sun. But you can remove the absurd phases, the obvious extravagances of competition—particularly in transport. Remember always, if you will—I purposely reiterate the point—that some fine day you can cease to regard the motor-truck, the inland waterway barge, the interurban trolley, and the steam railroad train as competitors, but rather in the proper sense, each as agents of that great function of life, transportation, and so in some time or place properly correlated. And you can begin by regarding the railroads together as at least a single efficient one of these agents, and not as a lot of quarreling small boys dissipating much of their energy through their trivial disputes. This is the lesson that the railways of France bring to the rest of the great world of transport.

Their division into seven great operating units—but always carefully correlated units—is only for the purposes of proper supervision. We have seen in a previous chapter how easily the efficiency of a single railroad may be thwarted by permitting it to grow to an untoward size. And before I am entirely done I shall hope to show you that even in a regional railway scheme, which applied to the United States might contemplate as many as forty different railroads—different in name and in operating organization—there must be a distinct effort toward a strong centralization of certain functions; notably financing, traffic solicitation and control, and the staff study of advanced operating methods of every sort. Along

the first two of these lines the *réseaux* of France have as yet accomplished but little. There has been up to the present time but little centralization of their control, although steps now are being taken toward that end. In the opinion of some of the wisest of Frenchmen to-day, such steps are not only the next in their railway development but certain to come to a successful head. Only the confusing problem of a single state-owned and operated system has prevented their being accomplished this long while.

But in the standardization of operating methods and practices much already has been done in France. Four companies, the Etat, the Midi, the Paris, Lyons, and Mediterranean, and the Alsace-Lorraine have formed an organization with the rather formidable title of *L'Office Central d'Etudes du Matériel de Chemins de Fer* for this purpose. This extremely active organization is divided into four departments, one in charge of tests, one for locomotive design, a third for car design, and the fourth to handle railway electrification.

Progress already has been made too in drawing up plans for various types of standard locomotives. A study has also been made of standard designs for freight-cars of special types, such as tank-cars, steel-cars, and the like. Some very interesting tests have been made of refrigerator-cars for the movement of fish and of fruits. Incidentally it may be said that before the coming of the World War there was little or no refrigerator-car movement in France or anywhere else in Europe, and this despite the remarkable advances made in the United States in this form of traffic for at least twelve or fifteen years before. To move safely certain low-test materials for the manufacturer. of explosives across tropical seas it was necessary for two French manufacturers to produce ships equipped with elaborate refrigerating devices. The technical knowledge which these men so gained in the manufacture of ice-making machinery they are now prepared to turn to good account in the production of refrigerator-cars, while the rapid development of France's wonderful new territory south of the Mediterranean

promises a growing area sufficient to produce a plenty of fresh fruit and vegetables not only for her cities, but for those of a large part of the rest of western Europe as well.

Perhaps the most interesting work, however, done up to the present time by the central study office of the French railways has been upon the development of electricity as a practical working power for their lines. (I made passing reference to this in an earlier chapter.) As yet they have lagged in this work. The Etat operates a dozen miles of electric standard railway between Paris and Versailles. The comparatively new Paris terminal of the P.-O. has electric operation for perhaps another dozen miles outside of the Gare d' Orsay. There are a very few isolated electric high-speed lines here and there across the face of the land. In these things the French do move slowly. But they generally move pretty thoroughly, and to-day they have developed a very marvelous plan for the electrification of at least one third of their entire railway mileage.

As a beginning a bill was passed in May, 1921, authorizing a company to develop the vast potentialities of the Rhone water-power—so vast as to be estimated to save France six millions of tons of coal a year, which is quite a factor in a country that does not in the average year consume more than sixty million tons.

This new scheme will mean the immediate construction of eighteen great power-houses along the upper reaches of the river, with a total development of 1,100,000 horse-power. The chief users of this huge supply of clean and inexhaustible power will be the City of Paris, and the Paris, Lyons, and Mediterranean railway. It is proposed that all the rail-lines in the huge quadrilateral between Bellegarde, Lyons, Marseilles, and Vintimille shall be completely electrified.

In the opinion of distinguished French engineers this single enterprise will be far the greatest, from an economic point of view, ever undertaken in France. Yet this is but the beginning. The Paris-Orleans has also ambitious plans under which

it expects to bring electric energy, water-generated, to more than one-half of its 3250 miles of line. The Midi, running for miles along the base of the Pyrenees, has abundant opportunities for this cheap motive-power. Its management is unusually progressive and it may be expected to take advantage of these in the not distant future.

The net result of this great national economy will be the annual saving of many millions of tons of coal in a land which has no fuel to spare, which is indeed dependent upon coal importations for her very existence, let alone the development of her industries.

Yet great as this huge economic step will yet prove itself for France, it still will remain secondary to her wisdom of the long-ago in the simplification of her entire operating system by means of the sensible and logical regional railway plan, with its consequent huge basic economies. France at the beginning started right. She is even to-day reaping the benefit of them. To-morrow when her other economic conditions shall have readjusted themselves she will reap a far greater benefit. The largest achievements of her regional plan are still in the future.

England has long since taken note of the situation in her neighbor just across the Channel. She has seen her own salvation in the French solution of the extravagant luxury of railway duplication. And even a traditional British prejudice against borrowing an idea from another nation has finally been broken down—in this particular instance very much broken down. Yet it is entirely probable that, had it not been for the coming of the World War, the Briton still would be enjoying the wasteful luxury of the excess service which his extravagant competitive system—very much like our own—had given him for many years. For it was extravagance, nothing more, nothing less, that led each of the three railways binding the cities of Liverpool and Manchester, about thirty miles apart, to run an hourly service between those cities. The trains might

run two thirds or three quarters empty, and frequently did, but the pride of the London and Northwestern, the Lancashire and Yorkshire, and the Cheshire lines was unheld. Competition is a great upholder of pride.

Along came the World War, and England from the beginning very much in it. The burden placed upon her railways was huge. To meet it they were placed under governmental control at the very outset and their services, aside from the military ones, bared to the bone. Such luxuries as three trains to the hour in each direction between Liverpool and Manchester were immediately abolished. Under a coöperative plan the trains between those two great English cities were, to use the phrase of the engineer, "staggered"—placed in a triple alternation, which gave virtually the same headway between them but with an operation of a little less than one third the former number of trains. The passenger was merely asked to show enough ordinary intelligence to study the time-tables and find from which of three passenger terminals his train of a given hour would start.

The astonishing feature of the entire thing was the lack of complaint from the traveling public which followed this wholesale reduction of train service. Everywhere throughout Great Britain it was the same. Competing trains between many of her busiest centers, arriving and departing at virtually the same hours but traversing separate routes, were consolidated, due regard being given to the necessities of intermediate towns which might happen to be served by but a single one of the road; and a war-time service was given for five years that was astonishingly good. Not perfect, of course. The Englishman traveling was forced to sit a little closer in his seat, sometimes compelled to wait in queues at the wickets to buy his ticket, occasionally, in the absence of porters, to handle at least some of his own luggage at the terminals. But there was very little hardship about all of this, and a tremendous resultant economy.

Great Britain will never go back to her old extravagances of the days of unbridled transport competition. True it is that

since the signing of the Armistice her railway service, both both passenger and freight, has been radically increased, but to nowhere near the point that it had reached in 1913. Fine frills, like the running of fast non-stop expresses between London and the ocean landing at Fishguard, in South Wales, to cite a single instance out of many, have been abandoned; never to be taken up again in your day or mine. The harsh necessities of vast economies born of a great war, the huge increases in labor and fuel and raw material costs that followed in its wake, do not encourage frills. Out of them came the demand for permanent sweeping economies that resulted in the passage of the important Railways Bill by Parliament in August, 1921, after many hard weeks of exhaustive study.

To bring fifty-four almost entirely competitive railways into four almost non-competitive ones and insure a governmental control of rates and other charges sufficient to bring the constituent roads a rate of return equal to that which they were receiving in 1913—here in brief is the chief purpose of the extremely lengthy Railways Act, supplanting all transport legislation that had gone before. It is the most drastic business move that England has accomplished in many and many a day. Upon it are pinned the hopes of a thinking people. And because, following in the steps of the long-established regional systems of France it has become a high hope for our extremely muddled rail transport situation in the United States, it is well worth at least a little detailed study.

The south coast of England runs at a distance from London of from sixty miles upward, as it extends both east and west of Brighton, the nearest point to that great city. Three separate systems connect it with London: to the extreme east the affiliated Southern and Chatham railways, made familiar to thousands of Americans who have used them as an essential link between Victoria Station and the beginning of the Channel crossing at Dover; the London, Brighton, and South Coast; and the London and Southwestern, this last line reaching as far west as Plymouth, down in Cornwall. In a sense it may be said that

these three railways are regional railways within a region. Each has fairly definite and non-competitive territory. Each serves its own principality, and serves it admirably. To make a region out of these three railways is no problem at all. It is solved, almost before it is begun.

Nor is the east coast of England to the north of London and right up to and beyond the old Scottish border difficult to bring into a single region. Three more or less parallel railways—the Great Central, the Great Northern, and the Great Eastern—occupy the eastern counties all the way up to York, 188 miles north of London, where the Northeastern has its real beginning and occupies the extreme northeastern corner of England as an absolute monopoly. This last line reaches within fifty-eight miles of Edinburgh. As a matter of operating convenience, however, its locomotives run all the way through to that ancient Scottish capital, traversing the final fifty-eight miles upon the rails of the North British company. Perhaps no better instance may be shown of the absurdly small typical English railway of to-day than to realize that within the 392 miles that lie between London and Edinburgh—no distance at all upon our American railroad map—the through fast expresses run upon three separate railways. The only condition we have that parallels and exceeds this is the operation of the Baltimore and Ohio's through trains from New York to Philadelphia, which traverse the rails of three roads—the Pennsylvania, the Lehigh Valley, and the Philadelphia and Reading—in the short ninety miles that intervene between Manhattan Island and the entrance to the B. & O.'s own rails.

The British railroaders have long recognized the absurdity of the railway that is too short just as they are able to point the finger of fine scorn at our many railroads that are entirely too long. More than a decade ago these four roads of the eastern counties of England sought to anticipate the present grouping principle of the Railways Act by an amalgamation of their properties into a single, succinct regional railway property. The proposal was bitterly fought in Parliament and then

defeated. Great Britain had not then become convinced of the extravagance of the competition principle in transportation. It was necessary to have a war to teach her that important economic lesson.

Almost as the northeastern corner of England is the undisputed principality of a single system so does a single railway, the Great Western, stretch alone directly west from London and almost completely dominates its territory. To bring it into regional grouping with any of the other important British railway systems has been well-nigh impossible. After a number of futile attempts the professional and amateur railroaders who have been attempting the solution of the regional plan for Great Britain have given up the idea. They have found that they could only combine the Great Western with the Cambrian and some other less important Welsh roads, and now they have let it go at that—a single well-developed region of some 3650 miles, well contained and, with the exception of a single long arm thrust up into Liverpool, fairly compact.

In the center of England rested the difficult part of the entire problem of working out a rational and economic regional plan. In the succeeding and final chapters of this book I shall show how in the two inner industrial centers of America, the one just east and the other just west of the Mississippi River, we shall come to two territories where the working out of a pure regional plan is virtually impossible. So it is in central England. Two great railways, possibly the two greatest in all Britain, the London and Northwestern and the Midland—occupy that industrial area with a perfect interlacing of lines, and at every corner of it fight energetically for its traffic. Other railways enter slightly upon it; as we have just seen, the Great Western with its line through Birmingham up to Liverpool, the Great Central and, in its northerly reaches, the cross-country Lancashire and Yorkshire. This last line has however recently been absorbed by the London and Northwestern. It

too anticipated the decisions of the Railways Act and comes into any grouping the largest single system in Great Britain, with considerably more than four thousand miles of line, a system roughly comparable in size and volume of traffic with our own Baltimore and Ohio, although in its history, as well as in the traditions of its personnel, more closely analogous to the Pennsylvania railroad.

To have attempted to separate the important London and Northwestern and Midland systems would have been to break down completely the whole spirit and plan of the British regional system. Therefore they have been brought into a single grouping, and with them the Lancashire and Yorkshire of course, the North Staffordshire, the Furness, the Caledonian, the Glasgow and Southwestern, and the Highland companies—the last of these, as their names indicate, Scottish lines.

Here then are four railways created out of fifty-four—some 24,500 miles of line as compared with the 27,000 miles of French railway. The groupings have followed the lines that I have just shown and take the names of the Southern; the Northeastern, the Eastern, and the East Scottish; the Western; and the Northwestern, Midland, and West Scottish groups respectively. The smaller and comparatively unimportant lines of the United Kingdom fall easily into some one of these four great regions. For a time Scotland itself represented a rather perplexing problem. The energetic young British minister of transport, Sir Eric Geddes, stood stoutly for the retention of all the Scottish railways in a separate, distinct, and strongly unified group. In this he was opposed. The old-time competitive idea that there should be at least two separate and rival routes from London up into Scotland—the one on the east coast and the other on the west coast of Britain—would not down. Geddes gave up. Then for a time he proposed a generous compromise in the form of two separate Scotch groups, one upon each side of the island and connecting with the Eastern (English) and the Northwestern and Mid-

land groups at York and Carlisle respectively. But even in this he was beaten. Scotland lost her railway autonomy. Her lines will be merged and as entities forever lost in the sweep of the two larger groups of the entire kingdom.

Geddes has stood in his position in regard to the Scottish railways for the regional plan in its purest form. His theory was excellent. But it had to give way to hard-headed practice. It often so happens. Remember always, if you will, that railroad competition has been a great god in Britain as well as in the United States. Yet competition is not to be too hardly judged, even by the loftiest of idealists. It has its good points, and they are many. Most of the fine excellences of our railroad service in this country were built up in its hottest competitive period. That is irrefutable. It is entirely probable that if we had not had that competitive period we should not have had a service even comparable with the high standard of excellence that we reached a decade ago. The point is that within the last generation genuine competition has ceased to exist between our railroads; the sham of it that remains is a fearful drag upon any really economical operation of them to-day.

Only a few years ago Lord Monkswell, the distinguished British student of railway problems, said:

"At sight it would appear that it [competition] has possessed certain advantages. It is found that in Great Britain, the only European country where different routes between the same important centers exist to any great extent under separate management, the train service is more complete than anywhere else *except France* [the italics are my own] and the passenger-fares are by no means particularly high. But when we remember that Great Britain was the first country to develop railways and so got a long start of the rest of the world, and that the population of Great Britain for each unit of area is much greater than that of any other big country—more than twice as great as that of France, and half as great again as that

of Germany—we see that there are other causes to which these effects may be ascribed.

“No conditions of this kind, however, tend in any way to show that competition, if attainable, is incapable of producing good results on railways at the present time. Far from it; railways present so many possibilities of improvement that if any really effective means could be discovered of inducing their managers to make bold experiments, it is more than likely that the best results would ensue. As has just been remarked the facilities offered to passengers are certainly on the whole greater in Great Britain than elsewhere, and in conjunction with—probably in consequence of—this, it is found that the passenger receipts per head of the population are approximately twice as large as they are in France or Germany.

“On the face of it then there is a very good reason for supposing that the receipts increase with the facilities offered. Now the two things above all others that passengers may be expected to care for are reduced third-class fares and increased speeds. If railway managers, animated by some real spirit of competition, were to offer these advantages, it is possible and even probable that travel would increase so much that the railways, besides conferring a great boon on their customers, would themselves secure large benefits.

“As regards the goods traffic, the definite elimination of all competition would be likely to have the result of doing away with several unsatisfactory features of this traffic. Even though there is ostensibly no competition in rates between the different companies serving the same points, there can be no doubt that the fear of losing traffic has frequently induced railways to make concessions of various kinds to traders, the results of which have been to give more or less secret rebates to the traders in whose favor the concessions were made.”

I have quoted Lord Monkswell in some detail because his remarks, made upon the British railway situation eight years

ago, are so pertinent and applicable to our American railroad situation of this moment. He has seen the rise and the decline of competition upon his home island. And we too have seen its rise and its decline, upon the North American continent.

Return for a final moment to the British regional grouping plan as it has finally been effected by Parliament; some of the many details are vital to us because they are details that before long we shall be compelled to face in the remaking of our own national railroad structure. The Railways Act over there, after outlining rather precisely the geography of the regional grouping, sets up an Amalgamation Tribunal, consisting of three commissioners, who will approve and confirm the amalgamation schemes submitted to them. This tribunal is to be a court of record and is to have an official seal. Its decisions are subject to a review by the Court of Appeal, whose decision is to be final, unless it gives leave to carry it up to the House of Lords itself.

It is expected that the work of this tribunal will be finished early in 1923, so that the new groups may begin active operations upon July 1 of that year. At one time it was suggested that the entire scheme be made operative upon July 1, 1921; the whole thing was suggested by the minister of transport as early as June, 1920. But that was obviously far too short a time. The railway companies would have none of it. They wanted it to begin not before January 1, 1924, and have nearly had their own way in the matter.

For it need not be supposed that the bill was adopted without contentions. These were many and some of them were bitter. The Scottish question was but one of several vexing sub-problems. A good many of the British railway men looked upon the rate return to come from the proper fixing of the tariff charges in each of the groupings as quite too low. The fact that it was the equal of 1913 has meant little or nothing to them. That year returned but 3.64 per cent. to the average British railway share, and some large holders of these securities felt

that they should have a much bigger return upon their investments.

Yet to go further into this vexing point would involve an intricate study of British railway capitalization. It is enough for our point now to say that it is large, extremely large, per mile as compared with our American capitalization. Those people who have made it their particular business to shout upon watered stock and bonds of our roads will have interesting food for thought if they will study the capitalization of railways overseas; particularly so if they will consider that the preliminary valuation reports of the Interstate Commerce Commission show many of our carriers as possessing an actual property value well in excess of the combined securities issued against it.

Then entire field of British railway operation offers many valuable and suggestive hints, even to a nation as supposedly expert in railroad operation as this. It is not possible in the limits of a single chapter to go into all of these. Among them is the development of electrification upon the standard lines of Great Britain; despite a seemingly slow progress in this great work (but 365 miles out of 24,500 being operated by electricity at the moment) it is known that a group of distinguished American electrical engineers has been engaged for some time past in devising a scheme for the operation of every mile of British railway by electric power. Others are the exquisite simplification and economy of her terminal operation and the facility of her small goods-wagons for short-haul traffic. These are all interesting. Yet, the single phase of her regional development so far outranks even these as to demand an almost exclusive attention.

France has led the way, has proved almost beyond doubt the value of the regional system; Great Britain now falls in line. The United States will be next in turn. Because the possibilities of the extension of this, the greatest of immediate railway economies, are so vast in this land of huge railroad development I shall leave their description until later. Then

I shall endeavor to show how as a nation we can all benefit—railroad patron, railroad shareholder, railroad employee alike—by the extension to our national transport machine of a plan which is so ingenious, so genuinely economic, and yet withal so simple as to make it a bewildering wonder that our biggest railroaders did not come to it long ago. That they did not is rather a sad commentary upon their vision—or lack of it.

CHAPTER XV

THE REGIONAL RAILROAD AT HOME

N EARLY six years ago I began a careful study of the possibilities of a regional railroad development within the United States. At that time I had not visited Europe. Yet a fairly thorough knowledge of the general plan of her railway organization, acquired through a process of careful reading, had made me cognizant of the regional plan as it exists there; particularly of the French *réseaux*. It was then apparent—well before our entrance into the World War—that the scheme of organization upon which our roads had been upbuilt for eighty-five years was approaching the end of its usefulness. Over-consolidation, the decline of real competition between the separate carriers, the increasing unintelligent interference of government with the minor details of railroad operation, the decline of morale—each of these things separately, all of them together, bespoke the slowly approaching end of our old order of railroad things.

What was to replace it? Government ownership? Some of the people who in 1916 had a stray thought or two that the state ownership and operation of our railroads might not be such a bad thing after all, by the end of 1920 were pretty well disillusioned. At the beginning of this book I reviewed in some slight detail the achievements and the failures of the United States Railroad Administration. It proved that in the centralization of an entire railroad structure of this land certain great operating economies might be accomplished; it also proved quite as definitely the fact that our 265,000 miles of railroad consolidated into a single structure was far too clumsy and too unwieldy for any sort of efficient operation whatso-

ever. A paradoxical statement in sound, but one in fact quite accurate.

Three years ago I attempted the fabrication of alternative railroad centralization and decentralization schemes. In the one I bowed abjectly to our great American god of competition. To the limit of my ability and knowledge I recognized banking control, natural traffic routes and breaking points, and interlocking directorates and ownerships. On paper I laid down a number of "competitively consolidated" railroads—not more than twenty, or at the most twenty-five,—for the entire United States. I linked widely separated roads because they already had linked themselves by joint ownership; I split New England in twain, giving the New Haven to the Pennsylvania and the rest of her railroads to the already overburdened and somewhat unwieldy New York Central. Such moves followed the logic of Wall Street. The comfort and convenience of Boston mattered not at all. Did she not have competition? What mattered it that under such a plan the Baltimore and Ohio, the Erie, the Lackawanna, the Lehigh Valley, or the Canadian roads would have no entrance either to her or to the fine industrial territory about her, save over the rails of competitors? That was a mere detail!

And while Boston might have the competition of two roads, little of the rest of New England would. As I have already said in this book, railroad competition may be the industrial necessity, nay even the very breath of commercial life, to such fine manufacturing towns as Rochester or Akron or Dayton or Grand Rapids, but how about such fine manufacturing towns as Bridgeport, New Haven, Hartford, and Providence? Are they not also entitled to the breath of commercial life? Yet to give these four big typical New England towns railroad competition would mean the complete dismemberment of the compact New Haven system—an almost utter impossibility. Southern New England is already pretty tightly set as a simon-pure railroad region. It can be regarded as nothing else.

So I tore up my "competitive consolidation" plan and began

work trying to place the entire country on the simon-pure regional idea, beginning with New England, which can easily be considered as a single region even though Boston shudders at the mere thought of such a thing. And in fact from the point of view of better operation New England would far better be divided into two regional railroads, each with its headquarters in Boston. One of these roads would embrace the Boston and Albany and the roads south of it, the New York, New Haven, and Hartford and its controlled properties, the Central New England, and the New York, Ontario, and Western. Incidentally this last road is something of a teaser in any regional planning. From Campbell Hall, New York, where it connects with the Central New England and the New Haven (by way of the Poughkeepsie Bridge) down to Scranton and the heart of the anthracite district, it is an essential part of New England's railroad system. From Cadosia—where the Scranton branch diverges from the present main line—north to Oswego it decidedly is *not* New England. There its value is very questionable, even for local traffic. From Oxford to Oswego, in any new order of things, it might either be given to a combination of the Erie and Lackawanna or else to the New York Central—neither road probably would be bidding for the opportunity.

Return to New England. Just as the present Boston and Albany would make a good east and west main-stem from Boston through Massachusetts to Albany for our newly created Southern New England Lines so would the erstwhile Fitchburg perform a similar office for the Northern New England Lines, which would include the Boston and Maine, Maine Central, Rutland, Central Vermont—probably, as to-day, right through to New London—and the Bangor and Aroostook. There would be left when this was done but two separate or “foreign” roads in the New England territory. And these would be “foreign” in the fullest sense of the word—the Grand Trunk (just now being absorbed into the Canadian national railroad system) and the Canadian Pacific, which reach across Maine toward Canada's winter ports upon

the Atlantic; Portland, St. Johns, and Halifax. It is not conceivable that these lines would be disturbed, any more that we should wish Canada to disturb the important links of the Michigan Central and the Wabash across the southwest corner of the Province of Ontario.

A good many people attempting this very difficult problem of regionalizing the railroads of New England have attempted to leave the Boston and Albany out of their calculations, which not only spoils the picture but makes the entire regional plan almost utterly senseless. Others doing the same thing have attempted to balance matters by giving the New Haven to the Pennsylvania, which is perhaps a little worse. That distinguished student of American railroads, Professor E. Z. Ripley of Harvard, who undertook recently a regionalization scheme at the behest of the Interstate Commerce Commission, fell into no such error. He gave New Haven to the Baltimore and Ohio, and I suspect did it knowing full well that the Pennsylvania, having been offered the New Haven long ago and having refused it, would probably not have a change of heart in the near future.

In its recent close new traffic alliance with the New Haven—an alliance whose outward expression consists very largely of some new through trains and sleeping-car services from New England by way of the Hell Gate Bridge and the Pennsylvania Station in New York City—the Pennsylvania undoubtedly has all of the New Haven that it can easily digest. Broad Street cannot be anxious to undertake the management of the Litchfield branch in Connecticut, or the Chatham one down Cape Cod way.

Yet I hear you asking Professor Ripley, if the Pennsylvania does not want to buy the New Haven, how much more so would the Baltimore and Ohio, whose terminals in New York are weak and whose finances generally are in a far more precarious condition, want to attempt the thing? Can the keen-minded Mr. Willard at Baltimore be more anxious than the keen-minded Mr. Rea at Philadelphia to undertake the man-

agement of jerk-water branches in Connecticut or in Rhode Island or down on Cape Cod? In answer to all of which a Harvard eye of deep wisdom would be winked. Mr. Ripley knows well that the New England railroad should be purely a regional railroad—or two regional railroads—and yet I think that he would be quite willing to embrace the suggestion of the Boston banker that its ownership—not an enviable honor to-day or apparently for many days to come—should be divided between the three or four or five trunk-lines that it serves.

This entire question of the probable ownership of the regional roads I have left until the succeeding and final chapter of this book. I do not agree in the opinion of many bankers that the regionalization of the roads should be attempted in a supine bowing to their financial results of recent years, and so should be based upon these showings. I believe that it should be based fundamentally upon the service needs of the communities that the regional roads of to-morrow will have to serve. The Southern Tier of the state of New York for too many years suffered set-backs from the fact that virtually its sole railroad servant was a historic line, which wholesale fraud had doomed to a lifetime of perpetual near-paralysis.

So much for New England. Such planning is typical of that which might be expected of any non-competitive regional plan. Along the entire outer or coastline rim of the United States the regional plan without compromise or variation works out pretty well indeed, all the way from the proposed Northern New England Lines that you have just seen out to the Californian railroad, or the Puget Sound Lines, which would immediately adjoin the Californian upon the north. Along the outer edges of the country it would be easy to devise. It is a pretty plan, and in its simplicity most beguiling. And yet when one comes to the center of the country this same simple non-competitive regional plan becomes almost utterly impossible. After all we are working with things as they are

and not merely with things as we should like to have them.

A careful study of the rival plans—non-competitive regional and highly competitive regional—has led me to a firm belief that the real solution of our problem of railroad organization in this country lies in a compromise between them. Were we to start afresh to plan the railroads of the United States, supposing that not a mile of track had been laid down between the Atlantic ocean and the Pacific and that our vision was sufficiently Aladdin-like to foresee the present growth of the land (really built up upon that very railroad development), we might well have adopted a purely regional plan, as did the French so long ago. But much as we may admire such a theory we cannot entirely ignore hard facts—the important properties already built and well developed, the recognized making and breaking points of traffic, the individual morale and tradition of the several roads—the sort of thing that we have shown, despite all of its recent labor troubles, still so existent upon the Pennsylvania and some other roads.

So in compromise we use the purely regional idea where the purely regional idea best serves high theory and the broad pathways of hard fact and established principle. We begin in New England and there we create an autonomous regional railroad—probably two, for reasons which we have already stated—each as we have seen with headquarters in New England's traditional capital, Boston.

Next we cross the Hudson River and tackle the great congested railroad district that lies between it and the thousand-distant cities of Chicago and St. Louis as a bloc. Here begins our problem in dead earnest. Shall we make two great regions of most if not all of it—the one to the north with the dark-green cars and the traditional name of New York Central, and the one to the south occupying all the rest of the territory down to the Potomac and the Ohio River with the wine-red cars and the traditions of the Pennsylvania? No, not unless we want to consider the operation of two great railroads of between twenty-five and thirty thousand miles of

line each. If we are to have any sort of intensive or good operation this is out of the question. With twelve thousand miles to be operated, each of these roads at times already flounders.

No, I think that we can do better than that. We can easily make four long narrow regions, stretching from New York about four and five hundred miles to the west, and to these give auxiliary regions, or rather regional railroads, further on, to Detroit, Chicago, St. Louis, and Cincinnati. The most northerly of these will be, of course, the New York Central, the unit management of which will be terminated or broken at Buffalo—as of other days—and to which will be handed the Delaware and Hudson, north of Albany, possibly the northern portions of the Ontario and Western, and some lesser properties. It might be possible to go even further and give the generally efficient even though somewhat unwieldy New York Central the Lehigh Valley, the Lackawanna, the Erie (east of Jamestown), the Buffalo, Rochester, and Pittsburg, and the rest of the Delaware and Hudson. But I hardly think that this would be practicable. We are trying, even in our theories, to keep our feet on the ground.

It would be better by far to take this last group and make it the second of our long, narrow northeastern regions—call it, if you will, the Erie-Lackawanna and place its eastern terminals at Albany, at New York, and, by means of the absorption of some sixty miles of the Reading, at Philadelphia too. This would make a well-balanced and compact group, fairly competitive and yet accomplishing great economies in the common use of trackage and terminals. The wastage in these things alone is hardly less than appalling, the opportunities for saving tremendous.

The third of this particular grouping of regions would be quite naturally the Pennsylvania. It too would be terminated as of other days, at Pittsburg, although, as we shall presently see, with its own auxiliary regional railroad it would go into the chief cities east of Mississippi.

And finally the Baltimore and Ohio! In an earlier plan, and in an earnest seeking for the simon-pure regional grouping of our railroads, I sought to thrust this historic property—not only one of the very oldest of our American railroads but the only one which has existed eighty years without a change of name or important change in its organization—into the melting-pot with its traditional rival, the Pennsylvania. But that would not go. Tho two metals refuse to amalgamate.

But suppose one takes the Baltimore and Ohio, chops it off at Parkersburg, at Wheeling, and at Pittsburg—as one did with the Pennsylvania—and adds to it the greater part of the Reading, the Central Railroad of New Jersey, the Western Maryland, and one or two much lesser properties. The result is a fairly compact property, sufficiently competitive in its reach to the larger terminal cities of its territory to appease those who must continue to bow the knee before that particular god of business, and yet enough unified to be easily handled from its traditional headquarters at Baltimore. That would seem to be more generally satisfactory than the obliteration of the Baltimore and Ohio, with its fine traditions, its good morale, and its general record of excellent service.

So much then for our four regional railroads to lie north of the Potomac, west of the Hudson River and east of Buffalo, Pittsburg, and Wheeling. How about the region that lies immediately west of these three last important gateway cities? Shall we consider those great railroad States of Ohio, Indiana, Michigan (the lower peninsula), and Illinois as a great single non-competitive region, in full accord with the high theory of the regional plan? No, not if we have any real regard for the feelings of the residents of those four great States. A single railroad for those four States might be workable, but I doubt it. I even doubt if you could operate successfully either a single railroad for either Ohio or Indiana. Illinois we shall leave out of consideration for the moment, while Michigan would probably be pleased as Punch to have her be-

loved Michigan Central returned to her as her own regional railroad, with its eastern terminals, as of yore, at Buffalo and at Suspension Bridge and its chief western one at Chicago—a single, independent, autonomous railroad property with a genuine presidential headquarters at the very important city of Detroit.

It is south of Michigan that the problem complicates. And here it is that I can only see to-day, and for many many hundreds of days to come, the retention of a pretty generally competitive transport plan. Regions, yes, if we still like the sound of the word. But regions which interlace so that in reality the word becomes a good deal of a misnomer. The New York Central Lines West (formerly the Lake Shore, the Big Four, and the Pittsburg and Lake Erie and the Lake Erie and Western), reaching from the terminal of the parent property at Buffalo out to Detroit, Chicago, St. Louis, Cincinnati, and Pittsburg, would have a president and real headquarters at Cleveland; the Erie-Lackawanna West would consist of the Wabash (east of the Mississippi River), the Nickel Plate, the Erie (west of Jamestown), the Wheeling and Lake Erie, the Clover Leaf and the Bessemer and Lake Erie. The Pennsylvania Lines West would be virtually as they existed prior to the recent after-the-war reconsolidation, but with the addition of a needed feeder into Detroit; and finally the Baltimore and Ohio West would consist of its present property plus the Cincinnati, Indianapolis, and Western, the Monon, and the Hocking Valley—all with headquarters at Cincinnati. That interesting little cross-country road of the interesting Henry Ford, the Detroit, Toledo, and Ironton, might easily fit into the westerly region of the Pennsylvania, while the Baltimore and Ohio would be given at least a trackage entrance into Detroit over the Père Marquette, so as to keep it on par with its three regional competitors. The rest of the Père Marquette would be merged into the embracing Michigan Central.

Just as this region, almost immediately east of the Mississippi River, bids fair to remain competitive for an indefinite

time, so is the territory immediately west of that great stream also bound to remain competitive. Reserve the greater part of Illinois Central for future and separate consideration, and now come to that Middle West territory. Are we going to create simon-pure regions there and ignore the fine traditions of properties such as the Burlington, the Rock Island, and the Santa Fe? No, not if we have any real sort of wisdom. North of them the problem is far easier of solution. The Milwaukee will merge quite easily into the Northwestern; although to operate the combined properties through to the Pacific coast would require at least three separate regional organizations—the Northwestern, between Chicago and the Missouri River, the Montana Lines from there to Spokane, and the Puget Sound Lines from there to the actual shore of the Pacific. Into these almost purely regional systems would also be merged the Great Northern and the Northern Pacific. The Burlington's line into the Twin Cities (St. Paul and Minneapolis) would cease to be. And in fairness to that road the Milwaukee's lines to Omaha and Kansas City would be withdrawn from the new Northwestern combination and parceled out between Santa Fé, Rock Island, and Burlington. Into such parceling would also go the always perplexing Chicago Great Western and the extraneous arm of the Illinois Central between Chicago and Omaha, running at right angles to the main-stem of that important system and to a larger extent disassociated from it.

It might be found more practicable to bring Union Pacific directly into Chicago over the rails of one or the other of these last two properties (Union Pacific's financial interest in Illinois Central already is a powerful one), although the Union Pacific's operating heads would probably prefer one of the routes between Chicago and Omaha discarded by the larger Northwestern grouping; the present Milwaukee between those two cities is better built and so more easily operated than Illinois Central or Chicago Great Western. Union Pacific for a long time has felt that it has the same right as its chief trans-continental competitor, the Santa Fé, to a direct entrance into

Chicago. In a way such as this it would be brought to a parity with the direct, although longer, southern route.

"But," you interrupt, "how about Southern Pacific in such a case? It is also a pretty warm competitor of the Santa Fé."

To bring both Santa Fé and Union Pacific into the Chicago gateway as transcontinental competitors and bar out Southern Pacific would be indeed grossly unfair. I have no intention of doing anything of the sort. Cross quickly with me from the Middle West territory to the lovely Pacific coast. Here again we think clearly in our own terms of purely regional railroads. Two of them would occupy the extreme coastal district all the way from the Mexican line to the Canadian. The most southernly of this twain is the Californian railroad, a fine, dignified name for a fine, dignified railroad extending well beyond the bounds of even the great Golden State, north to Medford, Oregon, and east to El Paso, to Albuquerque, to Salt Lake, and to Ogden. Within this huge and rather sparse territory—sparse as compared in a rail traffic sense with the territories west of the Mississippi River—we should have an absolutely non-competitive railroad, but under strict regulation operated for the greatest good of the greatest number. That has been done before in California; it is being done to-day and most successfully. The Southern Pacific is usually most responsive to its huge non-competitive territory. It gives to it in most cases an adequate service.

New England lends itself to the non-competitive and highly economical regional railroad. So does the west coast too, but because of its giant sweep we give this last seaboard two regions, the one to the north of the Californian railroad, the Puget Sound Lines, extending, as we have seen, north from Medford, and west from Spokane as well as south from Vancouver, British Columbia, and northwest from Ogden, Utah.

East of these two great railroads—and yet neither of them too intensive for successful management by a single executive head—are the Colorado Lines, embracing roughly the main mass of railroad trackage within the State and extending

north to Cheyenne and west to Salt Lake, by way of the present lines of the Denver and Rio Grande as well as by the yet uncompleted Denver and Salt Lake. It is a far smaller region than the two we have just considered, yet a territory of a considerable traffic and, because of its location, necessitating the most intensive sort of operation,

Now we begin to get these roads running down into the immediate Southwest from Chicago and into their proper relationship—the Rock Island, with its lines from Chicago, St. Louis, and Memphis, coming together and reaching to El Paso and out to the Colorado Lines near the eastern Colorado border; the Santa Fé, taking the original Missouri Pacific between Kansas City and St. Louis for a much-needed entrance into the latter city and touching the Colorado Lines at La Junta and the Californian both at Albuquerque and at El Paso; the Burlington shorn of its Twin Cities line, but given either the Missouri Pacific west of Kansas City or the former Kansas Pacific (to-day a detached but well-built branch of the Union Pacific) or both and terminating both at the Colorado State line and, by the acquisition of the Kansas City, Mexico, and Orient and the building of a few hundred miles of railroad, with the Californian somewhere in the general neighborhood of Albuquerque.

Here is balance. Here is a fair adjustment between logical competitors, the retention of competition where it is not practicable to eliminate it, and its abolishment where it is feasible to uproot it and establish great operating economies in the wake of the change.

We are not quite done. We have hardly considered the South. It is very much entitled to consideration, with its great growth in the last few years and its wonderful opportunities of the immediate future. But because, like California, it still has its intensive growth in the future rather than in the past, it is not too late to bend it into the economic regional plan.

We left the Californian railroad with an important eastern

terminal at El Paso. El Paso is in Texas, even though it is barely in it, and so becomes quite the logical western terminal of the Texas lines, which would exclusively cover in our scheme virtually the entire State east from Beaumont, Shreveport and Texarkana and south from Dallas and Fort Worth. It might even be possible to give the Texas regional system a direct entrance into Kansas City by acquisition of the entire Kansas City Southern, but I would doubt the wisdom of this. It would have the effect of throwing the delicate competitive shading remaining about that very great railroad center considerably out of balance. For if Kansas City by direct line, why not St. Louis or even Chicago?

No, that would hardly do. The Iron Mountain reaching in a splendid strategic position from St. Louis to Texas, shorn of its wretched *mésalliance* with the Missouri Pacific and given instead the Alton and certain portions of the 'Frisco and Missouri, Kansas, and Texas systems, would make an excellent feeder for the Texas Lines right through to Kansas City, to St. Louis, and Chicago, and still avoid the operation of too many miles or too attenuated a single system under one executive head. Meanwhile the competitive factor in the competitive territory which we have permitted to remain within the land would be appeased by the fact that the Rock Island, the Santa Fé, and the Burlington would also bind the Texas Lines to Kansas City, St. Louis, and Chicago. Our plan continues to balance, and to balance extremely well.

The Texas Lines would have still another competitive entrance into Chicago. We will take the Illinois Central—deleted, if you will recall, of its rather superfluous line to Omaha—and make it the main-stem and core of a far larger railroad which we may well give the more dignified and embracing title of Mississippi Valley railroad. From New Orleans straight north to Chicago, west to Beaumont, northwest to Shreveport and to Little Rock, possibly east to Mobile, and northeast to Birmingham—here is the making of a really dominating and yet very logical regional railroad. It also might and probably

would be both practicable and possible to make it live more closely to its name and give to it the line along the eastern bank of the upper Mississippi, between St. Louis and St. Paul, now operated by the Burlington.

There still remains the southeastern corner of the United States—and right here our problem reaches its final and most perplexing phase. Whether to rearrange it in two or three simon-pure regions or to have two or three competing systems within a comparatively large regional district is a question not easy of correct solution. I believe that the latter is the solution most likely to come, however. The inter-ownership of the Atlantic Coast Line and the Louisville and Nashville railroads is a factor not easily to be ignored. Ranged against this combined system—which in its final entity probably would include the Nashville, Chattanooga, and St. Louis and the historic Georgia railroad—is the huge Southern railway, upon which much thought and money has been expended within the last ten or twelve years, and which would meet it at virtually every important competitive point,

Only two other important railroads occupy this southeastern territory, south of Virginia—the Central of Georgia and the Seaboard Air Line. The first of these is the property of the Illinois Central and yet could not logically be made a portion of the Mississippi Valley railroad which we were outlining but a minute ago. The economic thing probably would be to parcel out these two properties, and several smaller ones, between the new Atlantic Coast Line and Southern railway combinations and finally retain for each of these their present valuable entrances into the City of New Orleans.

A great portion of the Seaboard Air Line lies in Florida, but Florida like New England and Texas and California lends herself quite readily to the absolute non-competitive regional plan. A Florida railroad would be touched by the Atlantic Coast Line and the larger Southern railway at Jacksonville, at Pensacola, and at intermediate points.

And finally, Virginia! She too lends herself to the regional plan, with the sole exception of the north and south lines of the Southern and the enlarged Atlantic Coast, the first coming north toward Washington through Charlottesville and the second through Richmond. The rest of the rails in both of the Virginias might very logically be grouped into a single great efficient system which would stretch from tide-water in the neighborhood of Norfolk back over the mountains to the Ohio River, and even beyond it to Columbus, to Cincinnati, and to Lexington. That the chief business of such a railroad would be the transport of coal goes without saying. With its vast combined water terminals in the neighborhood of Hampton Roads, it would be in a dominant position either for the export of its bituminous fuel or for its further shipment, both north and south, by the highly economical water lines along the coast.

Economy is indeed a watchword for this plan. I shall not attempt to take your time or dull your interest in its details by giving you too many of them. A very few single but rather typical examples of the savings to be made, were it ever to be placed in effect, will be illustrative. Here for instance is that so-called Southern Tier of New York—the long row of counties which lies for nearly two hundred miles against its Pennsylvania line. Many years ago the historic Erie pushed its rails through the Southern Tier. From its main line—originally built from Piermont-on-Hudson to Dunkirk, New York—it gradually shot branches north into the heart of the Empire State to Canandaigua, to Rochester, and to Buffalo. Eventually it made an interlacing of these branches, and in those days—when men hardly dared dream of the motor-car or the improved highway—the branches generally were profitable.

The Rochester branch, about one hundred miles in length, was typical of many of its fellows. It diverged from the main line at Painted Post, just west of Corning, and for the

next forty miles threaded a very rich and prosperous valley situated between deep hills. It was a small railroad but essential, and for many years it prospered, to a moderate degree at least.

Then in the early eighties there came a competitor through that narrow valley. The rich Delaware, Lackawanna, and Western, ambitious for a line of its own into the growing Buffalo gateway, in 1882 and 1883 laid down its rails alongside the Erie—along the main line all the way from Great Bend, Pennsylvania, just a few miles east of Binghamton, New York, to Painted Post, and along the Rochester branch as far as Wayland. The new railroad was a main-stem; double-tracked it gave frequent and swift servic. The little Rochester branch line of the Erie shriveled up and all but died.

In the regional organization that you have just seen me outline, I have brought together the rich Lackawanna and the poverty-stricken Erie, along with the Lehigh Valley, the Buffalo, Rochester, and Pittsburg, the southerly divisions of the Delaware and Hudson, and the Ulster and Delaware railroads. It takes no large amount of imagination to forsee that such a combination—and most railroad executives and broad-visioned bankers will agree that it is a logical one—can greatly simplify operation in southern and western New York and abandon miles of railroad that should have been abandoned many years since.

In effect, this Erie-Lackawanna system would have at least two separate main lines from its combined terminals at New York (how effectively these might be combined we discovered when we saw the possibilities of the electrification applied to the suburban traffic of the New York metropolitan district) all the way to Binghamton, a little more than two hundred miles distant. From that point west to the brisk small city of Corning the traffic could be consolidated upon one of these main lines, possibly three-tracked or four-tracked, and the other abandoned—a quick and easy solution

of some perplexing grade-crossing problems in the communities that it would thread. Similarly the old antiquated Rochester branch of the Erie could be abandoned all the way from Painted Post to Wayland. The parallel double-track would render it of no further use.

I could take the atlas maps of western New York and show you many, many more miles of railroad which could be abandoned profitably to-day, not to the hindrance but to the positive benefit of the communities which they are supposed to serve yet no longer serve, efficiently at least. But let us turn our attention from trackage to terminals and for the moment consider the chief city of western New York—the chief in size at any rate, Buffalo. Twelve steam railroads to-day enter Buffalo and share four main passenger-stations there. The Lackawanna has a handsome new terminal at the harbor-front, into which enter not only its trains but those of the Buffalo, Rochester, and Pittsburg and the Nickel Plate lines. The Lehigh Valley has an almost equally new and handsome station, which it shares with the Grand Trunk. The Erie plays the lone hand in a very ancient building, while the New York Central, the Pennsylvania, the Michigan Central, and one or two other roads are housed in the Exchange Street Station, which is fairly antediluvian in its antiquity and its inefficiency.

For some years Buffalo dreamed her dreams of a real union station, which would rise majestically from the lake-front in the neighborhood of the historic court-house and jail where Czolgosz, the assassin of William McKinley, met his trial and his just fate. Travelers who have had to pass through Buffalo and who have been compelled to change from one railroad to another there shared these dreams of a station into which all the trains should pass. But the city authorities and those of the railroads came to an absolute *impasse* in the matter. The New York Central, for instance, did not want to continue backing its through New York-Chicago passenger trains into the Buffalo station. It proposed as a compromise

a union station somewhere east of Clinton Street. But "somewhere east of Clinton Street" is *déclassé* to Buffalo, and the big lake-front town would have nothing of that.

So while mayors and general managers and high-priced engineers and all the other bigwigs stormed and argued the Lackawanna people and the Lehigh Valley people went right ahead and built their own passenger stations. It is not conceivable that these large handsome stations would now be abandoned. In the creation of the regional plan it is not necessary. It becomes obvious from the beginning that the many trains of the Erie-Lackawanna would easily fill the Lackawanna Station to repletion and permit of the final abandonment of the ancient Erie passenger-house with one of its most exasperating rail grade-crossing problems in the land as a perplexity always attendant upon its operation.

The Lehigh Valley Station, but slightly enlarged in its head-house accommodations, can easily be brought to meet the necessity of the other regional systems entering Buffalo—those of the New York Central, the Michigan Central, and the Pennsylvania. For it so happens that the present train-shed of the new Lehigh Valley passenger terminal lies parallel with and immediately adjacent to the tracks and platforms of the old Exchange Street Station of the New York Central. To make the head-house (the passenger, baggage, mail, and other facilities) of the Lehigh Valley Station accommodate the trains that now enter Exchange Street would hardly involve more than a rearrangement of these last groups of tracks and platforms, at an astonishingly low cost and with an astounding degree of operating saving—this last a factor which seemingly enters but little if at all into the calculations of the men who design our dazzling new American railroad stations.

Economy enters into the operation of a passenger terminal as it does into that of a freight terminal—and what can be accomplished in this last direction we already have seen. The upkeep of the passenger, baggage, and mail facilities of a rail-

road station—even one upon a comparatively simple scale—will come to a large figure in the course of a twelvemonth.

Rochester is but seventy miles distant from Buffalo. It is entered by six steam railroads, which occupy five separate and distinct passenger stations. McAdoo brought this down to but four, yet recently the Pennsylvania decided that it could no longer share the occupancy of the handsome and commodious station of the Buffalo, Rochester, and Pittsburg, so it reopened its former individual passenger station, for three trains in and three trains out each day. We do not have to go as far as Vancouver to see the essential waste of the pride of the competitive system.

Rochester is a city of a little more than 300,000 persons. Two stations, anyway—two of the existing stations—and possibly but one—the excellent new station of the New York Central—would serve all the passenger needs of both her steam and her interurban electric railroads, and with no more than the slightest trackage rearrangement. And at an operating economy, as well as an economy to the purse and time of the average traveler who must cross the city from one road to another, that is not capable of quick estimate.

Cleveland has just embarked upon an extravagant union station project which, after all is said and done, is not to be a union station. For some of the more sensible of the railroads who come to her have refused to be beguiled by so obvious a real-estate scheme and one involving huge expenditures at the very time when the average American railroad is pleading poverty and reducing its expenditures because of that plea. The huge capital expenditure of that proposed new Cleveland passenger-station might be saved in a large part, and still that enterprising city be given a fine passenger gateway that would express worthily her great pride and her great wealth.

I have always had a feeling that with foresight—and *an abolition of foolish competitive pride*—the huge capital expenditure already made and yet to be made upon the new Union Station of Chicago could have been very largely saved

by an enlargement and an adaptation of the existing passenger terminals of that city. The Northwestern for instance has a head-house out of all proportion to the train-house. A second train-house could easily have been built alongside of the present one without the real necessity of adding to the main frontage of the station upon Madison Street. Unquestionably new and much larger stations were and still are needed both at Dearborn Street and upon the lake-front. But these new stations will be needed even after the completion of the so-called Union Station, at an expense now estimated at well in excess of \$50,000,000. These other stations could have been built to a larger size without the expenditure of the \$50,000,000, and the Chicago Union Station permitted to become a matter of history.

It is useless, it seems to me, to stress too heavily the wage of the American railroad employee when gross capital expenditures of this sort have been made and are continuing to be made; or the rate of the traffic return. Our railroads have been far too greatly burdened by these gewgaws. Once in a while, of course, a station comes along, like the new Grand Central Terminal in New York, which is the fruition of a positive genius. If all of our passenger terminals had the economic strength of the new Grand Central it would not have been necessary to write these paragraphs. And I do not think either that it would have been necessary to raise the passenger-fares far from their before-the-war levels. But when one balances one Grand Central against a baker's dozen of Washington Terminals (with that overhead and operating cost of thirty-four cents a passenger) he sees at once the genuine value of that one Grand Central.

I can have no quarrel with the fine civic spirit that demands that the railroad station of the modern American city shall be the full architectural expression of its progress and its growth—in truth a city gateway. The exquisite monumental concourses of the Pennsylvania Station, the new Grand Central Terminal, and that at Washington have not been lost upon me,

while the somber but ecstatic beauty of the interior of the Kansas City Station—to say nothing of the wonderful toys in Fred Harvey's drug-store there—gives me a new thrill each time that I pass through it. But it does seem that we might sometimes use a little more sense and judgment in the planning of these stations. Monuments are quite all right in their way, if they do not cost too much to build and to maintain. Again let me illustrate.

When we were considering the electrification of the standard steam railroad in the United States in general, and the Boston suburban zone in particular, I called attention in a brief word to the fact that electrification would vastly increase the passenger capacity of the two great terminals of that city—South Station and North Station. I did not stop then to tell in detail of what it might mean to both of those two civic gateways, already badly crowded in the rush hours of the morning and the evening; of how it might avoid for twenty-five years or more the somewhat imminent present-day necessity of tearing them down and replacing them with far larger stations, at a huge capital expenditure. In South Station the fact that its builders of a quarter of a century ago had the wisdom and the foresight to place underneath the train-shed and head-house loop terminal tracks for future electric operation (tracks and platforms which have never been used and whose very existence is not even suspected by the majority of the people who use the station daily) might defer this necessity. At North Station the time for imperative and radical enlargement is close at hand, unless warded off by an electric installation upon most if not all of the many suburban lines that now enter that busy place.

Also in these chapters have I likened New England, in both its topography and its traffic problems, to Old England. Now may I go further and see in Boston fairly accurate replica of London, not alone in appearance—and that it is, with its Christopher Wren churches, its medley of old-time streets, its little parks and squares, and its general appearance

of staid sobriety—but in its own local problems of transport. Into London come the tens of thousands each business day by suburban train, both steam and electric. Yet London has no station in size comparing with the North or the South Stations of Boston. Even Liverpool Street and Waterloo, which come the nearest, fall far short in mere physical bulk, though not in train operation. Yet I am thinking of Victoria—that marvel of conciseness and terminal operation.

Victoria—both of the stations that rest side by side and share the name in common—seemingly is no larger than the Broad Street or Market Street Station in Philadelphia. The combined station certainly is not as large as Broad Street, barely larger than Market Street. Yet in each business day more trains arrive and depart from its train-sheds than either at Broad Street or at Market Street.

How is this done? In the beginning the British railway man does not feel that when he builds a railway terminal he has to provide a great congregation place for the people. There is of course at great interchange points in the heart of this country—such as Kansas City or Atlanta or Cincinnati or Omaha or St. Paul—a real need for abundant waiting-room capacity where through travelers may be properly housed between their trains—for a number of hours, if need be. At more strictly terminal or near-terminal points such as Philadelphia or New York or Boston this necessity largely disappears, and the space that is taken by huge waiting-rooms can better be used by more essential station facilities.

Victoria Station does not exceed ten platform-tracks in width. To handle more than 300 trains a day within this limited capacity means the very highest efficiency in train handling. Not only does it mean the maximum of promptitude in loading and unloading the trains but an adaptation of their schedules wherever possible so that an incoming train bringing passengers into the station is used for a regular run taking other passengers out again, and so the necessity of an “empty movement” into the storage-yards and back again is avoided. Moreover the

very arrangement of the tracks and platforms themselves leads to efficiency in these things.

When but a few years ago it became necessary to enlarge radically the capacity of the side of Victoria Station belonging to the London, Brighton, and South Coast railway the engineers found that they would have to think twice before they accomplished their purpose. The station was but six tracks in width, divided into two groups of three tracks each—two of these alongside the platforms, with a middle one reserved for the switching of the locomotives backwards and forwards. It was not possible to increase this limited width. Upon the one side stood an important through street of London—Buckingham Palace Road—and upon the other the equally immovable twin-station of the Southeastern and Chatham railway. Therefore the engineers did the one thing possible, short of the enormously expensive job of double-decking the station—they lengthened it, and at a comparatively low cost doubled its capacity.

To-day two long trains, standing one behind the other upon the same track, may load and unload their passengers at the same time, and without the slightest confusion or difficulty. The high-level platform (the station-platform at the same height as the floor of the train), which Parliament forced upon the British railways many years ago, is a tremendous help to quick entraining and detraining. Why it has not been more universally adopted in this country it is hard to understand. It is in successful use both in the Grand Central and the Pennsylvania Stations in New York, but at very few other points. And this despite the fact that in order to serve these two highly important stations virtually all the Pullman equipment in the country now has been adapted to high-level platform use. Yet only the Pennsylvania has had the courage and the vision to adapt this very sensible form of platform to its intermediate stations. It already has become a standard upon that great railroad.

That the adoption of a regional railroad system for this country would bring this and a hundred other needed improve-

ments—both greater as well as smaller than these of the economical passenger terminal—I am not attempting to argue. But I do believe that the regional railroad system, with its setting of the competitive phase in its proper position in relation to the conduct of our roads, would be a powerful factor in bettering present conditions, and in a way that would bring wholesale operating economies all the way across the land. This, in turn, should be translated most promptly to the public in two ways—lowered rates and bettered service. Here then is always the nub of the situation; railroad efficiency accomplished through operating efficiency, not necessarily wage reduction but reduction in other costs as well, as long as they may be accomplished without detriment to the service. The service upon our American railroads has long since been reduced to a point where their actual efficiency and value as public servants have begun to be impaired. From this time forward we must begin to puzzle out how their service may be bettered, and there is no better way for this than that which lies within a real correlation of their activities.

CHAPTER XVI

THE UNITED STATES RAILROAD

TO assume infallibility or even great accuracy in sketching a regional railroad plan for the United States would be of course ridiculous. We have just had the mere suggestion of twenty-five or twenty-six railroads, some of them non-competitive monopolies and others quite completely competitive, in form at least, which is about all that our so-called competitive railroads are to-day. Still the great transport god of our transport world apparently must continue to be appeased. Form seems to please him. We shall grant him that. But in a national transportation plan which begins to assume any real form of high organization we shall not permit the component parts of it to indulge in internecine struggle. It is too expensive business.

So probably we shall begin the operation of our regional plan, which you already have seen outlined geographically, by first taking our thousand or more separate railroads—nearly 265,000 miles of line—and thrusting them together into a great single organization. This we might easily call the United States Railroad, even though it is to be in one sense not a railroad, from an operating point of view at any rate. For once we have centralized our great rail transport plant, we shall at once begin to decentralize it. We shall make many railroads of it. We shall follow in the main the scheme used by those vastly successful private organizations, Standard Oil and the Bell Telephone, and the equally successful government institution, the Federal Reserve Bank, and set up regional and highly autonomous separate organizations. I began my planning of the regional railroad for this country with the number of

separate units fixed at about the same as of these three organisms that I have just mentioned—approximately an even dozen. Gradually I found, however, that in as intricate or as extensive a business as railroading in the United States twelve or fourteen or even sixteen regional companies would not be enough. Perhaps twenty-six is not even enough. After all, that is but a detail. What we really are seeking now is the proper method of organization.

Our regional railroads, recentralized and each provided with a president and other directing and operating officers extremely local and sensitive to the territory which they would serve, would have left something behind them in the central organization which was created primarily for the business of re-arrangement. For having transacted that immediate business the United States Railroad still would continue to exist as a permanent body, with its headquarters either in New York or in Washington. Its *modus operandi* would be the virtually continuous sessions of vice-presidents designated from its constituent railroads—one vice-president for each road, especially chosen for this purpose—together with the occasional meetings of the presidents and other executive officers. These men would form a congress whose powers along almost all phases of our national railroad would be virtually supreme.

Its greatest power—its greatest responsibility, if you please—would be the proper financing of our railroad structure. That problem is far too big to-day to be handled locally, even in the locality which we know as Wall Street, New York. And Wall Street has shown itself capable of taking care of some pretty large financing problems. Before we are done with our railroad financing, it may be necessary for no less a hand than Uncle Sam's to take hold of it, either by assuming the bonded indebtedness of the roads and against this issuing his own bonds at a slightly higher rate of interest, or else by direct and complete ownership of the carriers.

I am not going into this vexing and highly controversial phase of the railroad question in America further than to say that I

do not feel that this country is ready yet to accept government ownership and operation—particularly the latter. Please note that I have differentiated between these two. It is not often done. And yet in that very shading of difference may yet rest the solution of our entire railroad problem. At the conclusion of this book I shall refer to this again.

According to a man who has made a critical inspection of the outstanding securities of our American railroads and of whose ability and impartiality there can be no doubt whatsoever, these are represented chiefly in about ten billion dollars' worth of perfectly good bonds and about five billion dollars' worth of good stock, at least normally returning dividends. About \$100,000,000 might be written off in poor bonds, that either are fraudulent or else never should have been issued, while there are four or five billion dollars par value of stock certificates which to-day may be regarded as fairly hopeless. Out of all these securities three quarters would assay, which after all does not compare so badly with the estimate of value of from \$18,000,000,000 to \$20,000,000,000 which the railroads themselves place upon their properties.

These "good securities" in normal time average a return of from \$750,000,000 to \$800,000,000 each twelvemonth. Suppose that our Uncle Samuel, heeding what seems to be a rather certain voice of his people at this time to avoid both government ownership and government operation, should arrange that the "good" stock of the present railroads be turned in for that of the United States Railroad, which might either keep the stock issue in its own name or else at the proper moment divide it pro rata between its constituent regional roads? This certainly would not be either government ownership or government operation.

Upon the stock portion of this trade our good Uncle Samuel would arrange to guarantee a 4 per cent. dividend annually (possibly $4\frac{1}{2}$ per cent.) and try to standardize and pay a 6 per cent. one. That sounds a little different from the Transportation Act, does it not? As a matter of fact, it is

hardly conceivable that even a $4\frac{1}{2}$ per cent. guarantee would ever become a serious drain upon the United States Treasury, while the fact that the stock end of the capitalization of this railroad which is not a railroad would never be permitted to exceed more than 35 or 40 per cent. of the whole would be a real help in the situation.

If the roads that belonged to the United States Railroad found themselves earning more than 6 per cent. upon the entire property a tripartite even division could be arranged of the excess between their stockholders, their employees, and the Government. It is hardly conceivable, however, that such a condition would long continue without a demand arising for a downward revision of the rates. It is a question that would settle itself rather automatically most of the time.

The stock distribution of the new centralized company of the holders of the existing stock-certificates of the present companies would be in the ratio of the new standard dividend of 6 per cent. to be paid by the U. S. R. R. to the dividends maintained by the present companies for an average period of a certain number of years before the adoption of the scheme. Thus the stockholders of the Santa Fé railroad who have been receiving 6 per cent. would probably have a chance to make an exchange upon even terms; those of the Northern Pacific, who have been receiving 7 per cent. would gain one and one sixth shares of the new stock for one share of the present. New York Central stockholders would have five sixths as many shares of the new stock as of the old.

"Do you think that many stockholders would be willing to exchange their certificates upon this basis?" asks my querulous old railroad friend from out of the West.

I do not *think* anything of the sort. I believe that they would have to form many lines to the right of the security-holders who could not get to the places of transfer quickly enough. Uncle Sam holding the bag? Uncle Sam's credit back of our transportation system? Let me ask you, Old

Railroader, if you have any fondness for Liberty bonds in your own strong-box?

While the stock would be called in and reissued, the bonds of the American railroads—between ten and eleven billion dollars' worth and returning an average of 4.30 per cent. during the period of government control—would be called in, principal and interest, by the United States Treasury, and, as we have just seen, new government bonds issued against them—at just enough lower interest to make the thing a profitable banking transaction for our Uncle Sam.

The essentials of this plan are not my own. They are those of the Hon. George W. Anderson of Massachusetts, a most hard-headed and far-seeing jurist, who has had a remarkable experience in transportation law, including some years as a member of the Interstate Commerce Commission. I am putting it forward here for just what it is worth—nothing more. It is most interesting, and seemingly most workable. Judge Anderson and I differ, however, in one large essential. Trained Federal officer that he is, he sees centralization as the one panacea for the situation, which is a characteristic attitude of the Federalist, from the days of Alexander Hamilton until these.

I believe myself that the United States Railroad, should it be found necessary to incorporate it, should be made a Federal corporation and nothing else. The State charters of the present-day railroads would be made virtually null and void once the roads ceased to operate as separate concerns. It is possible, I will admit, that litigation might arise in regard to this delicate point. But in the steady decline of States' rights in all our political life I can have no great anxiety as to the final outcome of such litigation. Apparently the Federal Government and not the separate State has the power to-day.

I hold myself that once the centralized organization has been created—and I shall refer to its opportunities again in a moment—prompt decentralization is quite as essential to the situation. The Boston and Albanys, the Lackawannas, the Bessemers, all

the other successful small railroads of our present-day situation arise to bid me go very easily indeed when I suggest any national centralization of actual operation or of the actual relationship between the carriers and their workers. And Sentiment also crooks a warning finger. I know what she means by her glance.

It would be pathetic, nay tragic, to remove an American railroad name like the Pennsylvania or the Northwestern, to try to paint out the red cars of the one line and the yellow ones of the other. New York Central is too good a name to be scrapped. The same is true of Baltimore and Ohio. How can we prate of morale and then dare to take from under it the things that are its chief support? After all does sentiment count for nothing? And tradition? Have we not possibly become a little too materialistic a nation?

On the other hand Southern Pacific means but little to-day as the name of a railroad which reaches as far north as Portland, Oregon, and as deeply into the heart of the country as Ogden. The Californian railroad has a sense of dignity that ought to appeal to every man of that great State. Such a sense too has the Puget Sound Lines.

What's in a name?

Everything. Sentiment. Tradition. Morale. Progress. Dollars and cents, if you will force me to be materialistic.

But the far greater thing to be gained is the intimacy of contact resulting by the location of a railroad president with large authority within but a few hours reach of the people that he is endeavoring to serve. Why should the man of Concord, New Hampshire, or he of Lewiston, Maine, have to go farther than Boston for the adjudication of even his most serious differences with the railroad? Or he of Madison or Racine further than Chicago? And when it comes to the contacts with his fellow-workers, how can a railroad president in our Federal capital city of Washington be expected to know of

living conditions in Great Falls, Montana, or in Wichita Falls, Texas? Incidentally that is the chief issue upon which the Pennsylvania is to-day fighting the Railroad Labor Board in the courts. It wishes the right to meet its own workers, in its own way. This is real regional thought. The people in control of the Standard Oil and the Bell Telephone companies came long ago to bless the day when legislation embarrassing to them at the time, forced the regional system upon them. They now know its real advantages. The intimacy of labor control alone is worth all the trouble and all the expense.

There is little or no dispute among those who really know the situation that nine tenths of the solution of the railroad labor problem as it exists in this country to-day rests in better contacts between the employers and the employed. A predicament such as we saw but a little time ago—the general manager of a great railroad unable to get his proposals to his shop-workers—would hardly be possible in a road whose limits were not too great. A certain high executive of my acquaintance is going to take extreme exception to my suggestion that the regional trunk-lines in the immediate district between New York and Chicago be broken at Buffalo, at Pittsburg, and the Ohio River.

"I can sit in my office," he says, "and each morning within an hour talk with each of my subordinate executives—in Pittsburg, in Cleveland, in Detroit, in Chicago, in St. Louis, in Cincinnati."

Yet that is just the trouble. Too many railroads in this country have been operated on the long-distance telephone principle. Ten minutes' talk over a copper wire is hardly equivalent to a day of personal contact, once every ten or twelve or fourteen days. That the men who are at the very tops of our largest railroads have done wonders with the long-distance telephone I shall not deny. But I do not think that they have accomplished intensive railroad direction with it, or anything like intensive railroad direction. And I have not noticed them

accomplishing any remarkable results in bettering their relationships with their workers, or with raising the morale of their roads.

Yet just as regional operation and a pretty well divided regional operation, is essential to the best operating results in our American railroads, so on the other hand is centralization fairly vital to any large traffic or financial results.

It will be argued always against any plan for the centralization of our railroads that it makes an easy first step toward government ownership. Such argument is foolish. Yet if it might be good business for the Federal Government in some distant day to take such a step, why is it not good business to undertake it to-day? Particularly when it is in a position to command valuable governmental assistance in the taking of the step. Here is the real nub of this question.

For few practical railroaders will deny certain vast advantages to be gained by the complete centralization of our rail properties—not only in financing and in rate-making, but also in traffic solicitation and control, in expert staff study of mechanical and operating problems, and in the production of proper personnel, particularly for the filling of future executive positions. All of these functions and more too, the United States Railroad could and would undertake. In contentions which might arise from time to time between the regional roads, its word of decision would be absolute, its authority supreme. And nowhere is this more necessary to-day than in the vexed question of rates—particularly of freight-rates.

The expert traffic executives of this super-railroad would settle these rate questions, and be subject only to revisions, in the strict legal points involved, by the Interstate Commerce Commission, which then would become almost exclusively a high court of railroad law, in turn subject only to revision in its decisions by the United States Supreme Court itself. The traffic experts of the United States Railroad would control

absolutely the routings of through business where it passed over the lines of two or more of the regional carriers. But as an immediate beginning the best construction step that they possibly could make would be the creation of a real scientific freight-rate structure for this country.

Up to the present time this has been deemed an impossibility, by traffic experts outside of the ranks of the railroads as well as those within them. But it has only been an impossibility because of the lack of proper central organization or authority among our railroads as they exist to-day. Such a plan in the main—called the block-and-zone system—has now been in successful operation for a number of years in both our parcel-post and express services. I was in the express business myself when it first came into being there. Up to the very hour of its arrival the tariff-sheets of the express companies were veritable Chinese puzzles; they were nearly as complicated and as obsolete as the freight tariff-sheets of our American railroads of to-day.

The extremely gifted and far-seeing mind of the late Franklin K. Lane devised the block-and-zone tariff system for the express. Some of the older men of the express companies then felt that the blackest day in their history had come to hand. Within a twelvemonth the most reactionary of these had been converted to the new scheme. They saw its simplicity, its fairness, its utility, its economy.

What was done for the express nearly half a dozen years ago should be done for the railroad freight situation here immediately. At the time of his retirement from office Director-General McAdoo already had begun to plan a national freight-rate structure. He had engaged to perfect its details Edward Chambers, vice-president of the Santa Fé, and one of the ablest traffic men that this country has ever known. The Chambers plan was worked out quite fully but was never made public. It is known, however, that it follows very closely the general scheme of both the parcel-post and the express block-and-zone tariffs

varying from them only in its intricacies of detail due to the vast range of commodities that a railroad finds itself obliged to carry upon its cars.

For a centralized traffic bureau of our railroads there is also a huge international opportunity. The representation of our American roads overseas is to-day a woeful thing indeed. The Southern Pacific has an office of its own in Paris. Perhaps there are others. If so I have never seen them. But in my long months of residence in that old city the railways from all quarters of the world save the United States have called to me appealingly from their shop-windows along the boulevards. So it is in London; so in other great capitals of Europe. It is only America—only that lovely great quarter of North America that we call the United States—that is deaf and blind alike to the possibilities of the traveler and the freight from overseas. In April, 1921, I picked up the time-table of a prominent American railroad in the chief hotel in Madrid; in its familiar colorings it seemed like an old friend, indeed. It was an *old* friend. It was dated December, 1916—and so were all of its fellows from the U. S. A. in the time-table rack of the man from Cook's.

The United States Railroad would represent adequately every mile of railroad in the United States in every great city of the world. Its offices would be the outposts of American commercial enterprise. They would be filled with adequate and up-to-date information for the tourist and shipper alike. It might be that they would sell through tickets and through bills of lading to the most humble and sequestered of American communities, while to-day the scarcity of information that the European may readily acquire upon even important towns of our U. S. A. is appalling. Contrast such service, or lack of it, with that rendered, let us say, by the Swiss Federal Railroads in the City of New York, where one may go and find the fullest and the most accurate information in regard to the smallest of Swiss villages.

Already I have hinted upon the valuable work that this United States Railroad might do in the technique of the business, both in studying of constant new inventions as well as in working out better operating methods from the tools already at hand. This last certainly would include the constant study of a far better correlation between our steam railroads, our highways, and our inland waterways. It probably would result in not only the complete study of the most efficient and economical container but the actual ownership of several millions of them. It might be well for the title of all our freight-cars as well as our present Pullman sleepers to be vested in it. The advantages of a pooled ownership of these fleets of wheeled carriers, so extremely valuable in inter-railroad communication, have long been realized by our hard-headed railroad executives. The United States Railroad could accomplish such point ownership, and with a minimum of fuss and feathers. In the long run it might even accomplish the tremendous feat of establishing a through fast passenger-train between New York and Seattle. Who knows?

In other words the work of this centralized railroad organization would not only be analogous to the staff of any army but something considerably beyond. Expert railroaders, removed for a season, short or long, from the details and the vexations of everyday problems and working with skilled technical experts and even recognized theorists, ought to and would accomplish wonders. I have hinted also at the possibility of a strong central organization in training and recruiting future executive personnel. Those possibilities might be carried much further, in the super-relationship between the American railroad and the rank and file of its employees. With a proper scheme of representation upon our United States Railroad—of which more in a moment—it might even be possible to have it supersede the present rather hapless Railroad Labor Board out at Chicago and so accomplish a real governmental economy.

Yet remember that the actual hiring and the immediate re-

lationship and authority between the railroad and its employee—no matter what his rank—should always remain with the regional organization. For remember also that it is largely for this purpose that we brought it into being—to better the human relationship between the human officer of the railroad and its human patron and its human employees. Contact alone does this. For this we have gone through to decentralization. We have tried to keep authority in these human relationships active and alert and acute upon the immediate ground. If we can accomplish that one great thing, if we can make our railroad of the United States as a huge mechanism of organization quickly responsive to the human being and his rights, it will be well worth the huge expense and trouble of decentralization. Remember all the while, if you will, that the one very great sore spot of our railroad problem is that we have thought too much of it always in terms of dollars and not enough of it in terms of men.

I bear no particular grief for the organized bodies of shippers or for those of the employees. They are all entitled to fair treatment—and nothing more. The one group may easily become a pest, the other an autocrat. Yet a just consideration for the patron and for the employee is a rock upon which our railroads may stand secure, the lack of it a rock upon which they may inevitably crash. This may be poor epigram, but it is a solid fact.

In fact I may go much further and state quite bluntly that no plan for the reorganization of our railroad system of the United States now has any real prospect of success that does not recognize in its fundamentals the need of a radically changed status for labor.

It matters not that there are now five or six millions of workers temporarily out of employment, that the railroad strike of October, 1921, was called off because organized labor saw naught but defeat in it; the fact remains that in the future labor must be given just and proper representation in the initial management and so must be forced to assume its own proper share

of the responsibility for the uninterrupted and steady development of our rail transport facilities. That it must be given a fair wage is now beyond the point of controversial discussion. There may be, and probably will be, plenty of future discussion as to just what constitutes the fair wage and the fair working condition for the railroader, but the fact remains that if these both are not kept fair and just there will not be sufficient railroaders coming forward to maintain the human side of the machine. Here is a self-evident fact of which our reformers sometimes quite lost all track.

With this principle in mind I believe that the directorate of the United States Railroad, divided into three groups, should have one of these composed of directors elected by the classified employees of the roads. Assuming that fifteen or twenty-one would be the right size of directorate—in order to avoid too clumsy and unwieldy a body—from five to seven men would represent labor, a similar group the public (probably being appointed by the President of the United States and confirmed by the Senate), while the third group would be elected by the stockholders of the company. It might be found more practicable to have a separate set of fifteen directors for each of the regional railroads and, by making these directorates almost exclusively local, so serve still further to keep the management of these regional roads alert to the service of their individual roads, right here and now.

The point is that whether there is one board of directors or twenty-five or twenty-six for the future rail transport organization of the United States, labor must have its representation there. This, in addition to the possible sharing of one-third of the dividends over 6 per cent. which already I have suggested, would form a generous gift to labor. For it labor must in return make a generous offering. For despite sentiment, I believe that is the usual economic principle in the making of gifts. The gift that labor must make in return in this instance is its recognition that any combination of employees in restraint of trade—no matter under what name—is illegal

and against the public weal. Strikes of any form unquestionably are combinations in restraint of trade. To-day they are legal. They must be made illegal, both in law and in universal public opinion. This, of course, cannot affect the right of the individual railroader to leave his job if he desires. That, of itself, also is fundamental. Certain it is that no railroad should want a man who is disgruntled and dissatisfied for very many hours in its employ.

Of late it has rather become the fashion among many otherwise thinking people of a degree of mentality to ascribe the many troubles of our railroads in this country either to the "high" wages that they are paying their employees or to over-regulation on the part of various governmental commissions, both State and Federal. Of the wage question I have said my last words in this book. Nor is the highly controversial question of regulation—or of so-called over-regulation—worth much discussion.

From time to time some gifted (but uninformed) soul bursts into the public prints with the highly original suggestion that we should in some mysterious and occult fashion return to the days before 1887 when regulation of our rail carriers was an unknown art in these United States. It all has a rather fascinating sound, particularly to such people who may have been the witnesses or the victims, direct or indirect, of some of the ridiculous rulings that these commissions—particularly the State ones—occasionally hand down. Unquestionably there have been many foolish decisions. Unquestionably many of them have contradicted and offset one another. And the dabbling of the professional politician into the delicate centers of a transportation machine, of which he really knows nothing at all, has brought us a very great deal of trouble. But—

I do not believe that any thinking railroader or patron of the railroads—no matter what his job or what his degree or station in life—really would go back voluntarily to those uncouth, unregulated days of 1886 if he could possibly avoid it. In thirty-five years many things are forgotten. It once took our mag-

azine muck-rakers nearly two decades to set down the great business evils that arose in those very days that now seem halcyon to us largely because thirty-five years have aided us so largely in the business of forgetting.

Then there is the chap who cries for the return of a Hill or a Harriman—I do it myself at times; I had and still have much admiration for each of them—a Hill or a Harriman who with the wave of some mystic, magic wand will make all transportation things right once again. We Americans fairly worship a character of that sort, even though we may have largely created him within our own imaginations. We love to fall prone at his feet.

Yet even as one of those who from time to time cry aloud for a Hill or a Harriman, I am quite ready to admit that perhaps the slow but certain progress of our American civilization has now brought us beyond the necessity of bold, blunt captains of industry such as these two big and picturesque figures of our recent history. It is possible, please remember, that if either of them had been given the supreme control of all our railroads they might not have made such an overwhelming success of it. It is possible that even under their wizard hands there might have arisen distrust and discontent, both upon the part of the patrons of the railroads and of their workers. Remember that we do move. And 1922 cannot be 1886. Or 1896. Or 1906. Or even 1916. And perhaps it is just as well that it should never be any of these years. Why turn the clock backward anyway? It is much better to be looking forward.

Looking forward may yet bring us government ownership and operation of our railroads. Just now I do not see it. Yet sometimes we move pretty rapidly here in the United States and charge about face, with an astounding swiftness.

It is probable, however, that before we adopted both government ownership and operation, as a permanent policy, at least, we should swallow but one of the pills. It is not necessary in the present event to take both at once. If it did

become necessary it probably would be that of ownership, and possibly somewhat along the lines that I have indicated for the formation of the United States Railroad. In which case it would be necessary to contrive some plan for the leasing of the regional railroads to private corporations, for operation solely. This has been done already, notably in India, but never with a pronounced success. It is also the method used by the City of New York for the operation of its newer rapid transit lines, and again without success. It has many complications, many potential difficulties in its pathway. And it is hardly conceivable that it will come into use ahead of a scheme for a centralized, privately-owned and operated railroad.

Yet despite all these possible complications and difficulties, in the eyes of the average man who thinks, it still is to be preferred to the double-dose of government ownership plus government operation. That the first of these offers large opportunities for the proper financing for the steady growth and the future development of our rail transport I think that I have shown you already. It is the stronger of the twins. Of the second it is hard, as yet, to speak with much enthusiasm. To say that he is untried is putting the thing both mildly and with extreme politeness. To say that the American public of to-day even wants to try him, would be making a large statement, a very large statement indeed. Without joining in the shrieks for the coming of a second Hill or a second Harri-man or the wholesale murder of all the regulatory commissions, I honestly believe that our American public to-day wishes a little safer, a little surer panacea for its transportation ills, than government operation. It is not the solution that it really desires for its railroads of to-morrow.

UNIVERSITY OF CALIFORNIA LIBRARY
Los Angeles

This book is DUE on the last date stamped below.

HE 1000 1000
2.41 1000 1000
1000 1000 1000

UC SOUTHERN REGIONAL LIBRARY FACILITY



AA 001 007 773 3

HE
2.41
1000

